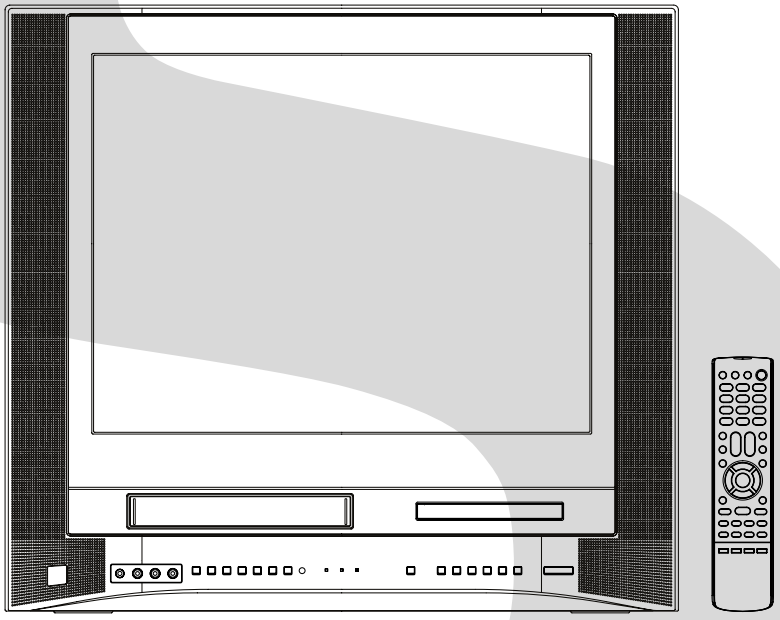
TOSHIBA

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER

VTW2187



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

WHEN REPLACING DVD DECK

[Removing the DVD Deck]

Before removing Pick Up PCB and DVD PCB connector, short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

[Installing the DVD Deck]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

NOTE

- Before your operation, please read “PREPARATION OF SERVICING”.
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 350 ± 5˚C
  - Soldering time: Within 2 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to prevent the Flux smoke from it.

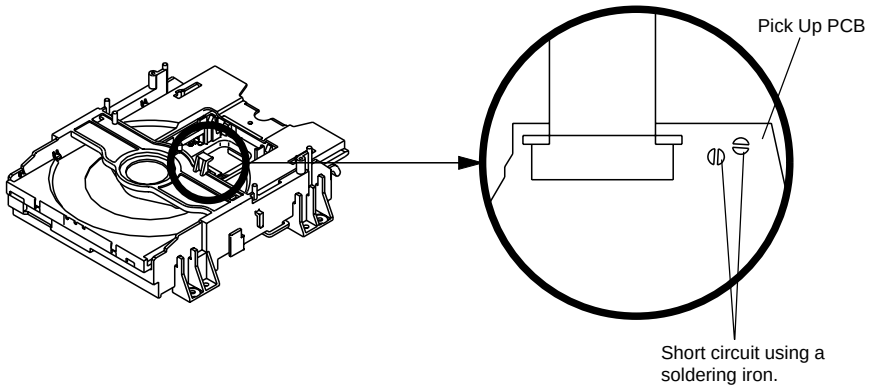


Fig. 1

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit as shown in **Fig. 1** below.
   (Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
   (Refer to Fig. 2)
4. Rotate the Clutch Ass'y either direction to wind the Video Tape in the Cassette Case.
5. Repeat steps 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch the tape.

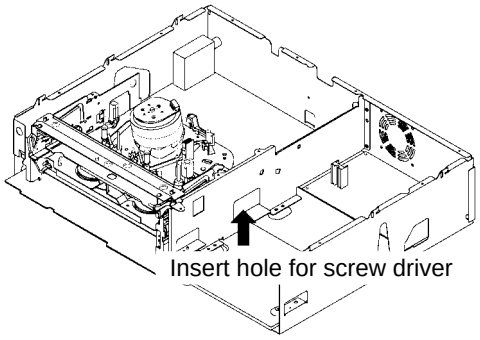


Fig. 1

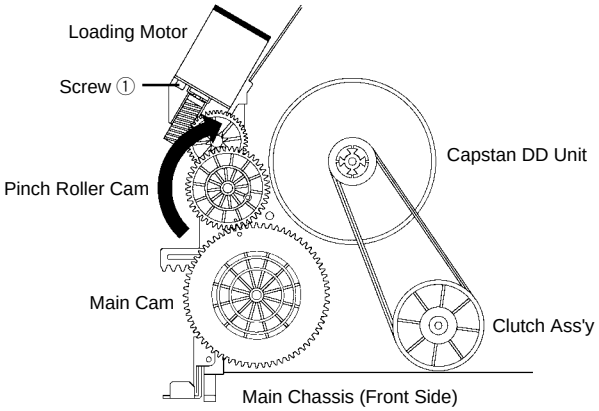


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and TV//DVD/VCR Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Rotate the Main Gear in the direction of the arrow by hand.
   (Refer to Fig. 1)
3. Manually open the Tray.

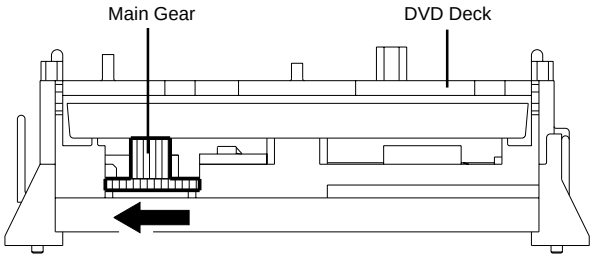


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '7' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 3 seconds.
5. The On Screen Display message 'PASSWORD CLEAR' will appear.
6. The 4 digit password has now been cleared

TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO' and '0' key of a remote control unit.
4. The On Screen Display message ' ⏏ ' will appear.
5. The Tray Lock has now been set up.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO' and '0' key of a remote control unit.
4. The On Screen Display message ' ⏏ ' will appear.
5. The Tray Lock has now been cleared.

PREPARATION OF SERVICING

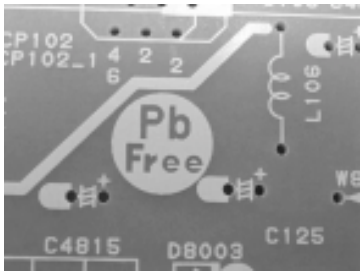
The laser diode used for a pickup head may be destroyed with external static electricity.
Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, a life of product may become short.
Please perform the following measure against static electricity, be careful of destruction of a laser diode enough at the time of repair, and work.

- It works on the desk which performed measures against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

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GENERAL SPECIFICATIONS

G-1	**TV System**	CRT		CRT Size / Visual Size	21 inch / 508.0mmV
				CRT Type	Flat
				Magnetic Field BV/BH	+0.45G / +0.18G
		Color System			PAL
		Speaker			2 Speaker
				Position	Front
				Size	1.8 x 3.9 Inch
				Impedance	8 ohm
		Sound Output		MAX	1.5W + 1.5W
				10%(Typical)	__
		NTSC4.43(AV)			No
		PAL60Hz			Yes
G-2	**VCR System**	System			VHS Player / Recorder
		Video System			PAL
		Hi-Fi STEREO			Yes
		NTSC PB(PAL 60Hz)			Yes
		Deck			OVD-7
		Heads	Video Head		4 Heads
			FM Audio Head		2 Heads
			Audio /Control		Mono /Yes
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec	PAL	SP/LP
				NTSC	-
			Play	PAL	SP/LP
				NTSC	SP
		Fast Forward / Rewind Time (Approx.) at 25oC			FF:1'48"/REW:1'48"
				Cassette	at E-180
		Forward/Reverse Picture Search		NTSC or PAL-M	SP=3x,5x
				PAL or SECAM	SP/LP=5x,7x/7x,13x
		Frame Advance			Yes
		Slow Speed			1/5, 1/10,1/30
G-3	**DVD System**	Color System			PAL
		Disc			DVD, CD-DA, CD-R/RW, Video CD, SVCD DVD-R/RW (Video Format Only)
		Disc Diameter			120 mm , 80 mm
		Drive			DM3O
		Search speed		Fwd	4 step
				Actual	2-120 times(DVD) 4-40 times (CD)
				Rev	4 step
				Actual	2-120 times(DVD) 4-40 times (CD)
		Slow speed		Fwd	1/7 -1/2 times
				Actual	--
				Rev	--
				Actual	--
G-4	**Tuning System**	Broadcasting System			U.K. System I
		Tuner and Receive CH		System	2 Tuner
				Destination	U.K.
				CH Coverage	21~69
		Intermediate Frequency		Picture(FP)	39.5MHz
				Sound(FS)	33.5MHz
				FP-FS	6.0MHZ
		Auto Tuning Method			-
		Preset CH			80CH
		Stereo/Dual TV Sound			Yes (NICAM)
		Tuner Sound Muting			Yes

GENERAL SPECIFICATIONS

G-5	**Signal**	Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	1 V p-p/75 ohm
			S/N Ratio (Weighted) at DVD Mode	65dB
			S/N Ratio (Weighted) at VCR Mode	53dB
			Horizontal Resolution at DVD Mode	400 Lines
			Horizontal Resolution at VCR(SP)Mode	240 Lines
		RGB Signal	Output Level	-
		Audio Signal	Input Level	-3.8dBm/50k ohm
		VCR	Output Level (0dB=0.775Vrms)	-3.8dBm/1k ohm
		DVD	Output Level (-20dBFs 0dBFs=2.0Vrms)	-12.0dBm/1k ohm
			Digital Output Level	0.5 V p-p/75 ohm(DVD)
			S/N Ratio at DVD (Weighted)	90 dB
			S/N Ratio at VCR(SP) (Weighted)	42 dB
			Harmonic Distortion at DVD Mode	0.06% (1kHz)
			Harmonic Distortion at VCR(SP) Mode	1.5% (1kHz) Typical
			Frequency Response :	
			DVD Mode at DVD	4Hz - 22kHz
			at Video CD	4Hz - 20kHz
			at SVCD	4Hz - 20kHz
			at CD	4Hz - 20kHz
			VCR Mode at SP	100Hz - 10kHz
			at LP	100Hz - 5kHz
			at SLP(EP)	-
		Hi-Fi Audio Signal	Dynamic Range : More than	75 dB
			Frequency Response :	20Hz - 20kHz
			Wow And Flutter : Less than	0.01 %Wrms
			Channel Separation : More than	60 dB
			Harmonic Distortion : Less than	1.0 %
G-6	**Power**	Power Source	AC	230~240V 50Hz
			DC	-
		Power Consumption	at AC	80 W at 230 V 50 Hz
			at DC	-
			Stand by (at AC)	6 W at 230 V 50 Hz
			Per Year	-
		Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector(Micro Fuse)	No
			Dew Sensor	No
G-7	**Regulation**		Safety	CE , BEAB
			Radiation	CE
			X-Radiation	NONE
G-8	**Temperature**		Operation	+5oC ~ +40oC
			Storage	-20oC ~ +60oC
G-9	**Operating Humidity**			Less than 80% RH

GENERAL SPECIFICATIONS

G-10	On Screen Display (TV/VCR)	Menu			Yes
		Menu	Type		Character
		Timer Rec Set			Yes
		Channel Setup			Yes
			Auto Tuning		No
			Ch Mapping		No
			Ch Tuning		Yes
			Ch Allocation		No
			Guide Ch Set		Yes
		TV Setup			Yes
			On/Off Timer Set		Yes
			Picture		Yes
			Audio		No
			NICAM Auto On/Off		Yes
		VCR Setup			No
			Auto Repeat On/Off		Yes
			System Select		No
			Scene Repeat		No
		System Setup			No
			Clock Set		Yes (Calendar 24h)
			Language		No
			System Select		No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			Yes
		Stereo/Audio Output			Yes
			Bilingual		No
			NICAM		Yes
		Control Level	Volume		Yes
			Brightness / Contrast / Sharpness / Color		Yes
			Tint		No
			Bass/Treble/Balance		No
			Manual Tracking		Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Yes
		TV/VCR			Yes
		DVD			Yes
		Clock / Date			Yes
		CH/AV			Yes
		Tape Counter(Linear Counter)			Yes
		Tape Speed			Yes
		Sleep Time			Yes
		Auto Tracking/Manual Tracking			Yes
		Index			Yes
		Mute			Yes
		Hi-Fi			Yes
		PDC			Yes
		Repeat			Yes
		Zero Return			Yes
		DEW			No

GENERAL SPECIFICATIONS

G-11	On Screen Display	Menu (DVD)			Yes	
			Menu Type		Character	
			Language		Yes	
				Menu	Yes	
				Subtitle	Yes	
				Audio	Yes	
			Picture		Yes	
				TV Screen Size(4:3, 16:9)	Yes	
				OSD Display On/Off	Yes	
				JPEG Interval	Yes	
				Select Files	Yes	
			Sound		Yes	
				DRC (Dynamic Range Control)	Yes	
				dts Decode		No
				Output(5.1ch/ 2ch)		No
				Surround On/Off		No
				Center On/Off		No
				Sub Woofer On/Off		No
			Parental		Yes	
				Password Lock/ Un Lock	Yes	
				Rating Level	Yes	
			Other			No
				OSD Language(Set up Language)		No
				Output(RGB/Composite)		No
			Open		Yes	
			Close		Yes	
			No disc		Yes	
			Reading		Yes	
			Play		Yes	
			Still/Pause		Yes	
			Stop		Yes	
			Prohibit Mark		Yes	
			Step		Yes	
			Skip(>>|)		Yes	
			Skip(|<<)		Yes	
			Random		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Repeat		Yes	
			Slow+		Yes	
			Slow-			No
			Search+		Yes	
			Search-		Yes	
			Jump		Yes	
			Resume		Yes	
			Title No.		Yes	
			Chapter No.		Yes	
			Track No.		Yes	
			Time		Yes	
			Sub Title No.		Yes	
			Angle No.		Yes	
			Vocal On/Off		Yes	
			Audio No.		Yes	
			Audio Stereo L/R		Yes (Video CD)	
			Zoom		Yes	
			Marker No.			No
			Program Play Back		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Surround On/Off			No
			Screen Saver			No
			MP3, WMA, JPEG	Folder Name	Yes	
				File Name	Yes	
				File No	Yes	
				Time	Yes (MP3, WMA Only)	
				Track No	Yes	
G-12	OSD Language		TV/VCR		English	
			DVD		English	
G-13	Clock,Timer and Timer Back-up	Calendar			1990/1/1 ~ 2081/12/31	
		Timer Events			8 Program/ 1 Month	
		One Touch Recording	Max Time		SP 5 Hours	LP 10 Hours
		Sleep Timer	Max Time		120	Min
			Step		10	Min
		On/Off Timer	Program(On Timer / Off Timer)		1	Program
		Auto Shut Off	No Signal		15	Min
			No Operation		-	Min
		Timer Back-up (at Power Off Mode)			30	min.

GENERAL SPECIFICATIONS

G-14	**Remote Control Unit**	Unit(for TOSHIBA)		RC-KT
		Glow in Dark Remocon		Yes
		Remocon Format		ORION
		Format		NEC
		Custom Code		71-8E
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		48
		Keys	TV/VCR	Yes
			DVD	Yes
			Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0/AV	Yes
			CH / Page Up	Yes
			CH / Page Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			Display	Yes
			Sleep	Yes
			Audio Select	Yes
			Mute	Yes
			Skip- / Channel Return	Yes
			Skip+ / TEXT/MIX/TV	Yes
			T-REC	Yes
			Rec/OTR	Yes
			Slow	Yes
			Play	Yes
			Stop	Yes
			Rev	Yes
			Fwd	Yes
			Pause/Still/Step	Yes
			CM Skip / Jump	Yes
			SP/LP / Return	Yes
			Counter Reset / Angle	Yes
			Zero Return / Subtitle	Yes
			Zoom / Reveal	Yes
			Menu /Setup	Yes
			Video+/ Program/ Repeat A-B	Yes
			D.Tracking / Top Menu	Yes
			Tracking+ / DVD Menu	Yes
			Tracking- / Play Mode	Yes
			Cancel / F/T/B	Yes
			Enter / Hold	Yes
			Index / Sub Page	Yes
			Cursor Up / Green	Yes
			Cursor Down / Yellow	Yes
			Cursor Left / Red	Yes
			Cursor Right / Blue	Yes
			Position	No
			Wide	No

GENERAL SPECIFICATIONS

G-15	Features (TV/VCR)	Auto Head Cleaning		Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)		Yes
		CH Auto Setup/Auto Clock		Yes
		PDC		Yes
		TV Auto Shut off Function		Yes
		Index Search		Yes
		SQPB		No
		CM Skip(30sec x 6 Times)		Yes
		VM Circuit		No
		TV/REC Monitor		No
		Choke Coil		Yes
		Energy Star		No
		Protect of FBT Leak Circuit		Yes
		Zero Return		Yes
		Power On Memory		No
		T'Text		Yes
			Text type	Fastext
			Text Language	English, French, Swedish, German Spanish, Italian, Czech
	Features (DVD)	Tray Lock		Yes
		Auto Stop (Pause, and Resume Stop after 5min.)		Yes
		VIDEO CD Playback		Yes
		SVCD Playback		Yes
			Overlay Graphics And Text	No
			Command List	No
			Entry Point Jump	No
		MP3 Playback		Yes
		WMA Playback		Yes
		JPEG Playback		Yes
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		3D Surround		No
		Screen Saver		No
		Copy (Disc to Tape)		Yes (by Conditioning)
		Audio DAC		192kHz / 24bit
G-16	Accessories	Owner's Manual	Language	English
			w/Guarantee Card	No
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	-
			Terminal	-
			w/300 ohm to 75 ohm Antenna Adapter	-
		Loop Antenna		No
			Terminal	--
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	No
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		21pin-RCA Cable		No
		RF Cable		Yes (0.9m)
		Registration Card		Yes
		PTB Sheet		No
		Anti-Theft Sheet		No
		Euro Warranty Information Sheet		No
		Helpline Sheet		Yes

GENERAL SPECIFICATIONS

G-17	**Interface**	Switch	Front	Standby	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play (VCR)	Yes
				Stop / Eject (VCR)	Yes
				F.FWD/Cue (VCR)	Yes
				Rew/Rev (VCR)	Yes
				REC/OTR (VCR)	Yes
				Play (DVD)	Yes
				Stop (DVD)	Yes
				Skip+/Search+ (DVD)	Yes
				Skip-/Search- (DVD)	Yes
				Open/Close (DVD)	Yes
				Input Select	No
				Main Power SW	Yes
		Indicator		Standby	Yes(Red)
				REC/OTR	Yes(Red)
				T-REC	Yes(Red)
				TV/VCR	No
				DVD	No
		Terminals	Front	Video Input	RCA x1
				Audio Input	RCA x2(STEREO)
				Other Terminal	Headphone
			Rear	Video Input	No
				Audio Input	No
				Video Output	No
				Audio Output	RCA x2(STEREO)
				Digital Audio Output	Coaxial (DVD Only)
				Euro Scart	1-SCART
				VHF/UHF Antenna Input	DIN type
				AC Inlet	No
G-18	**Set Size**			Approx. W x D x H (mm)	573 x 482 x 517
G-19	**Weight**			Net (Approx.)	27.5kg (60.5lbs)
				Gross (Approx.)	31.0kg (68.2lbs)
G-20	**Carton**		Master Carton		No
				Content	-
				Material	-
				Dimensions W x D x H(mm)	-
				Description of Origin	-
			Gift Box	Material	Double/White
				Dimensions W x D x H(mm)	658 x 575 x 625
				Description of Origin	Yes
			Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	31
			Container Stuffing(40' container)		216 Sets
G-21	**Material**		Cabinet	Front	PS 94HB
				Rear	PS 94V0 Non Decabrom
				Jack Panel	-
			PCB	Non-Halogen Demand	Yes
				Eyelet Demand	Yes
G-22	**Environment**		Pb-free Soldering		Yes
			Parts Specificat		Yes

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 6 screws ①.
2. Remove the Back Cabinet in the direction of arrow.

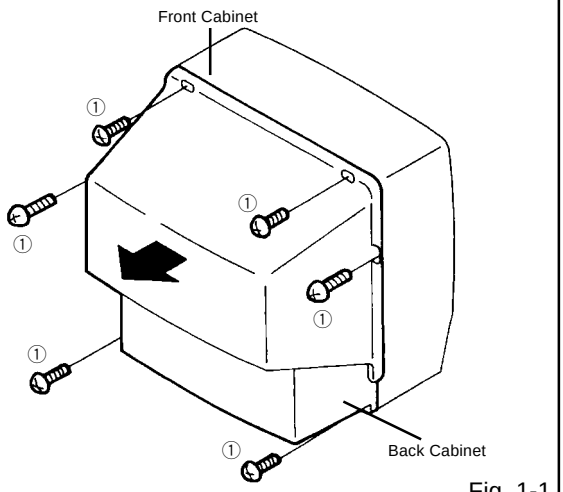


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE.
BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   (CP801 and CP853B).
3. Remove the CRT PCB in the direction of arrow.

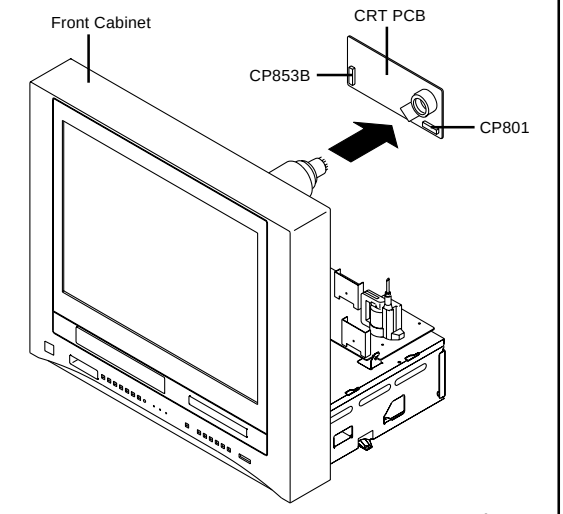


Fig. 1-2

1-3: POWER SW PCB (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connector: **(CP1704)**.
3. Remove the Power SW PCB in the direction of arrow.

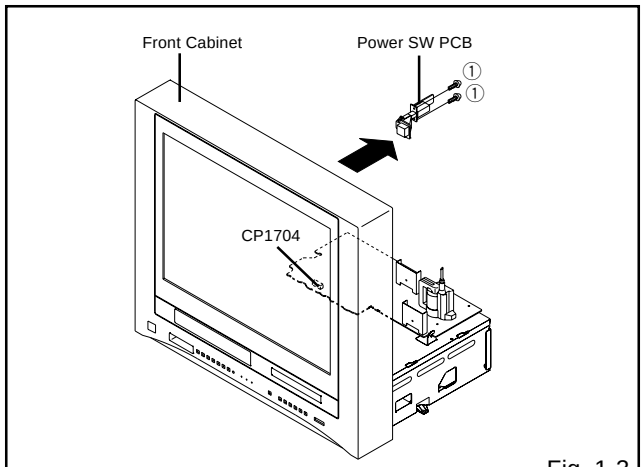


Fig. 1-3

1-4: TV/DVD/VCR BLOCK (Refer to Fig. 1-4)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP352, CP402 and CP1702).
3. Remove the TV/DVD/VCR Block in the direction of arrow.

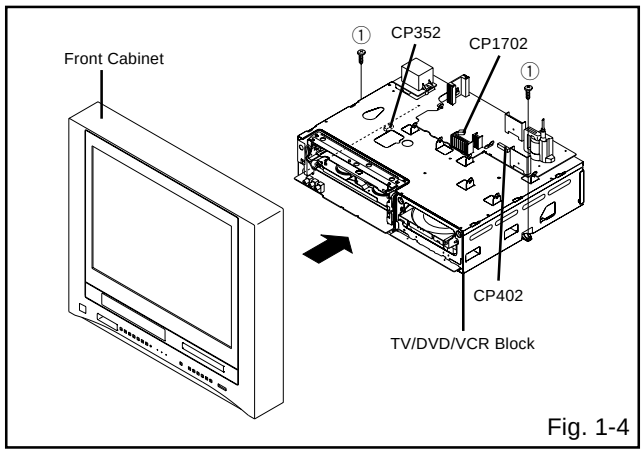


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: FILTER PCB (Refer to Fig. 1-5)

1. Remove the screw ①.
2. Disconnect the following connector: **(CP504)**.
3. Remove the Filter PCB in the direction of arrow.

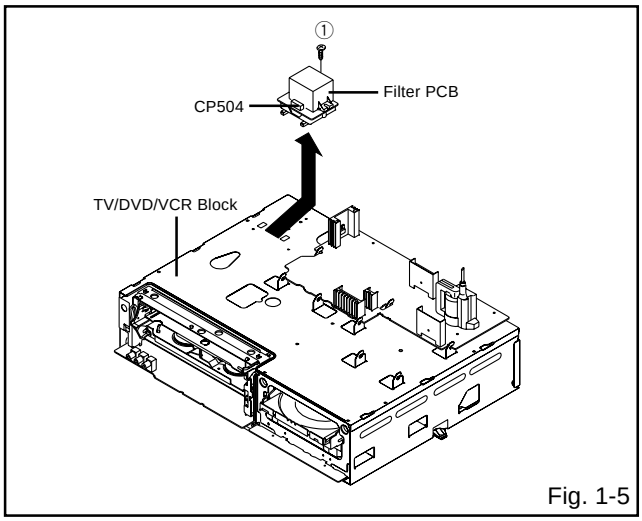


Fig. 1-5

1-6: MAIN PCB (Refer to Fig. 1-6)

1. Remove the 2 screws ①.
2. Remove the 4 screws ②.
3. Disconnect the following connectors:
   (CP3601, CP3602 and CP3603).
4. Remove the Main PCB in the direction of arrow.

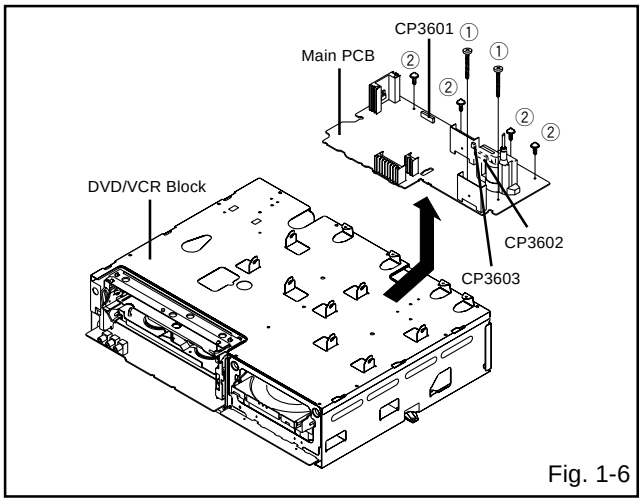


Fig. 1-6

1-7: TOP SHIELD (Refer to Fig. 1-7)

1. Remove the 11 screws ①.
2. Remove the Top Shield in the direction of arrow.

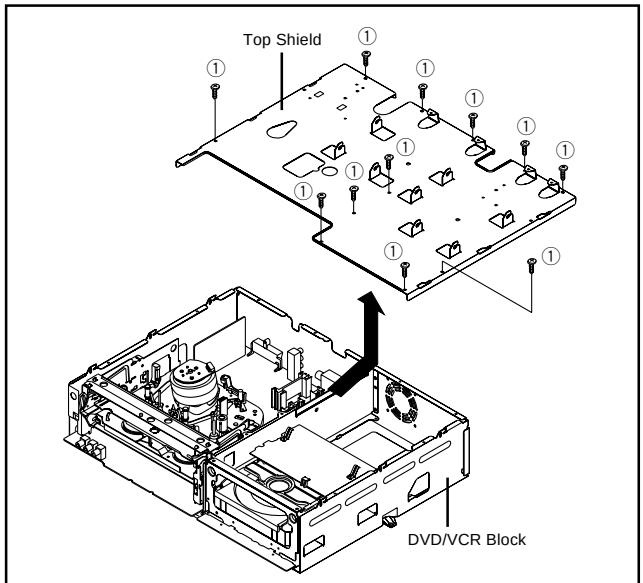


Fig. 1-7

1-8: DVD BLOCK (Refer to Fig. 1-8)

1. Remove the 2 screws ①.
2. Remove the VCR Holder.
3. Remove the 4 screws ②.
4. Disconnect the following connectors:
   (CP8001 and CP8002).
5. Remove the DVD Block in the direction of arrow.

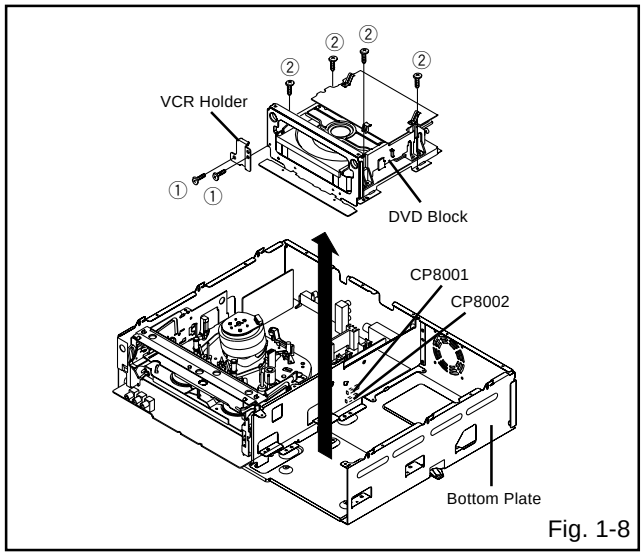


Fig. 1-8

DISASSEMBLY INSTRUCTIONS

1-9: OPERATION PCB/DVD PCB/DVD DECK (Refer to Fig. 1-9)

1. Short circuit the position shown in **Fig. 1-9** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 2 screws ①.
3. Remove the Operation PCB in the direction of arrow (A).
4. Remove the 2 screws ②.
5. Remove the Front Shield in the direction of arrow (B).
6. Remove the 4 screws ③.
7. Remove the DVD Deck in the direction of arrow (C).
8. Remove the 2 screws ④.
9. Disconnect the following connectors: **(CP2601, CP2602 and CP2603)**.
10. Remove the DVD PCB in the direction of arrow (D).

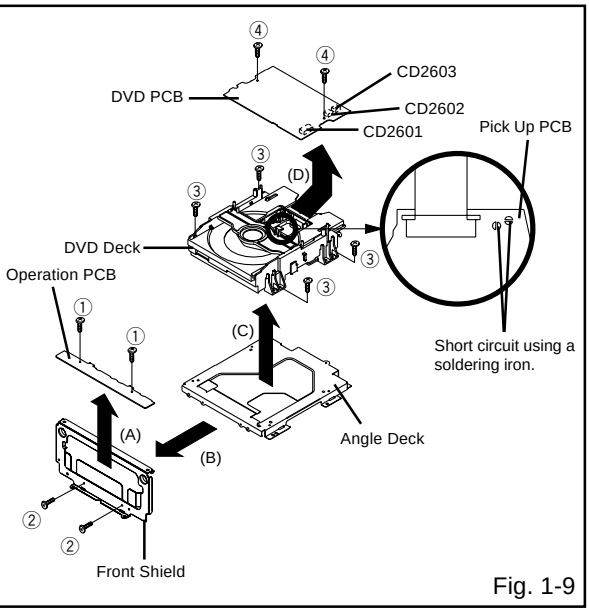


Fig. 1-9

NOTE

1. Before your operation, please read “PREPARATION OF SERVICING”.
2. Use the Lead Free solder.
3. Manual soldering conditions
   - Soldering temperature: 350 ± 5˚C
   - Soldering time: Within 2 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

1-10: VCR DECK (Refer to Fig. 1-10)

NOTE

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the screw ①.
3. Remove the FE Head.
4. Remove the 3 screws ②.
5. Remove the screw ③.
6. Disconnect the following connectors: **(CP1001, CP4501 and CP4505)**.
7. Remove the AC Head Cover and VCR Deck in the direction of arrow.

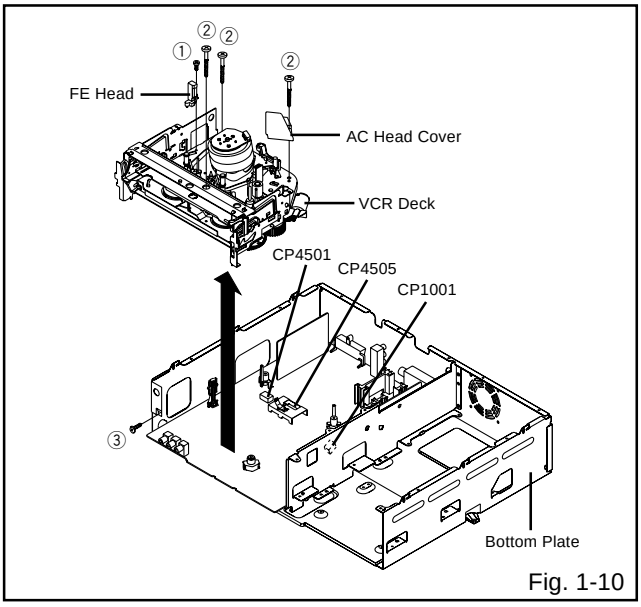


Fig. 1-10

1-11: VCR PCB (Refer to Fig. 1-11)

1. Remove the 4 screws ①.
2. Remove the AV Jack Shield.
3. Remove the VCR PCB in the direction of arrow.

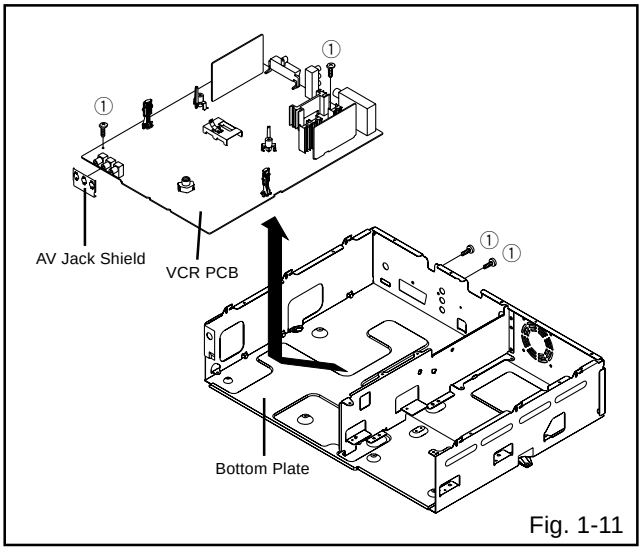


Fig. 1-11

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF VCR DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

1. After installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

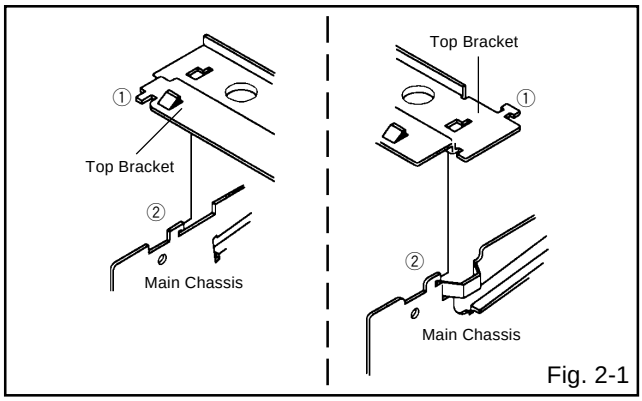


Fig. 2-1

2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

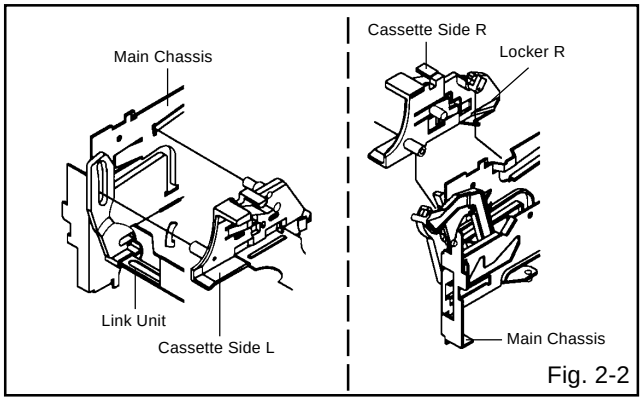


Fig. 2-2

2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

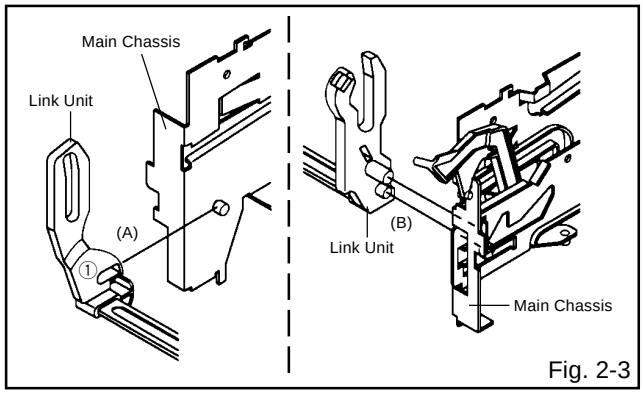


Fig. 2-3

2-4: LINK LEVER/FLAP LEVER (Refer to Fig. 2-4)

1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.

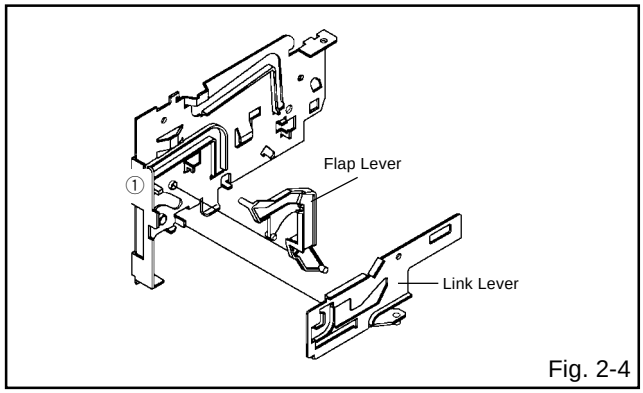


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

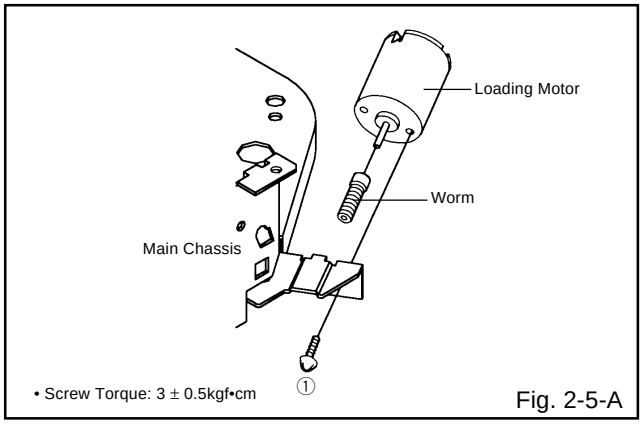


Fig. 2-5-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.

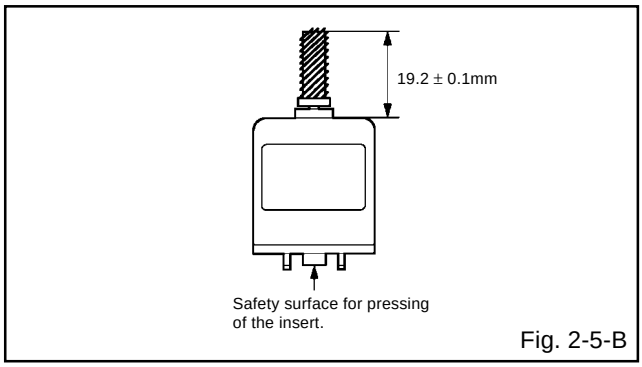


Fig. 2-5-B

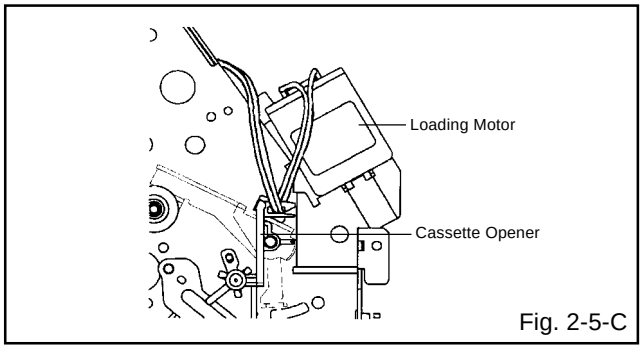


Fig. 2-5-C

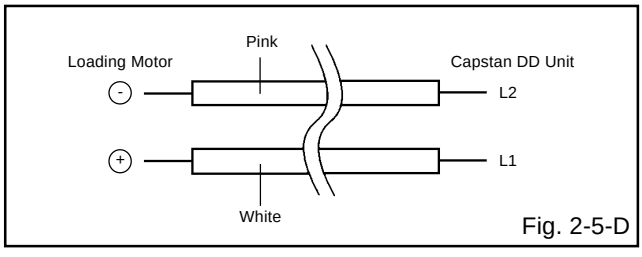


Fig. 2-5-D

2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

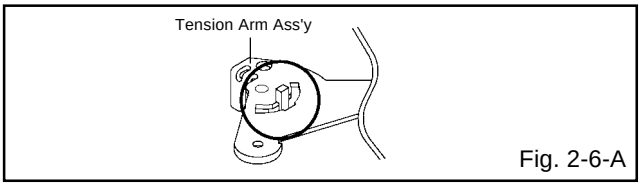


Fig. 2-6-A

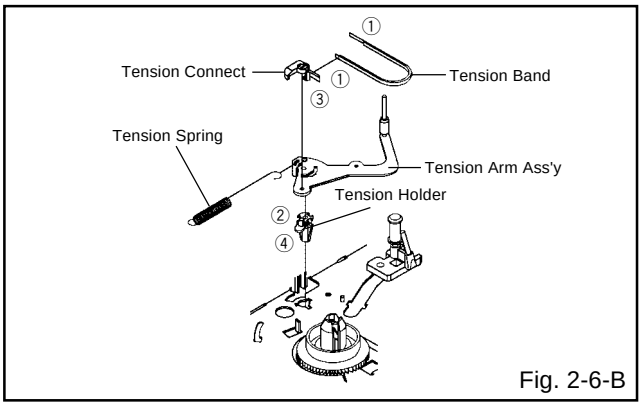


Fig. 2-6-B

NOTE

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-6-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

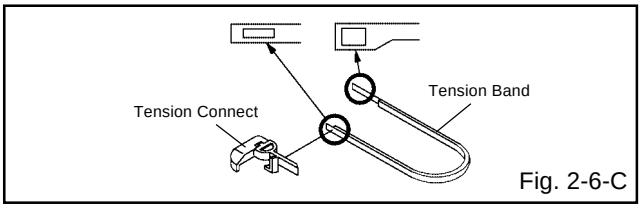


Fig. 2-6-C

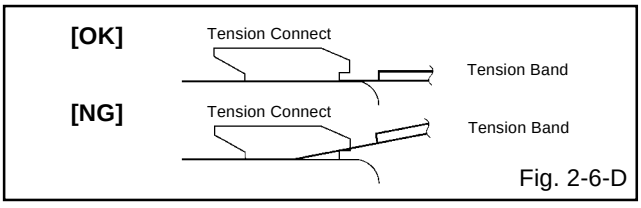


Fig. 2-6-D

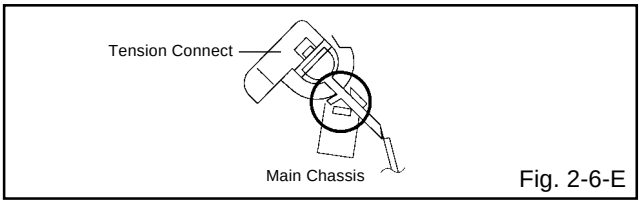


Fig. 2-6-E

DISASSEMBLY INSTRUCTIONS

2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

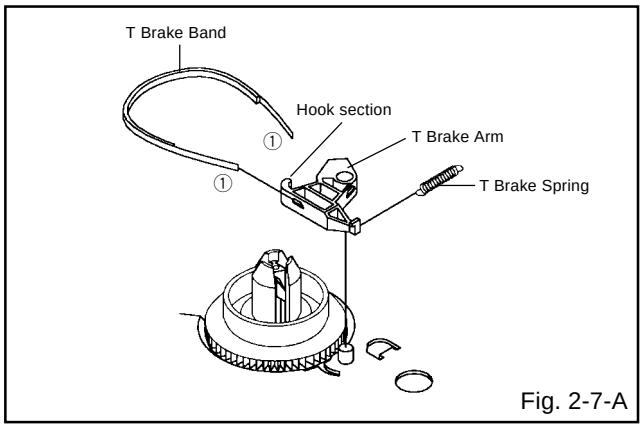


Fig. 2-7-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

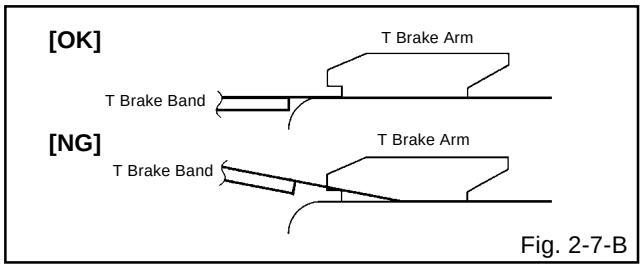


Fig. 2-7-B

2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may remain on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch section “A” of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-8-A)** Touching may leave stains on section “A”.
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

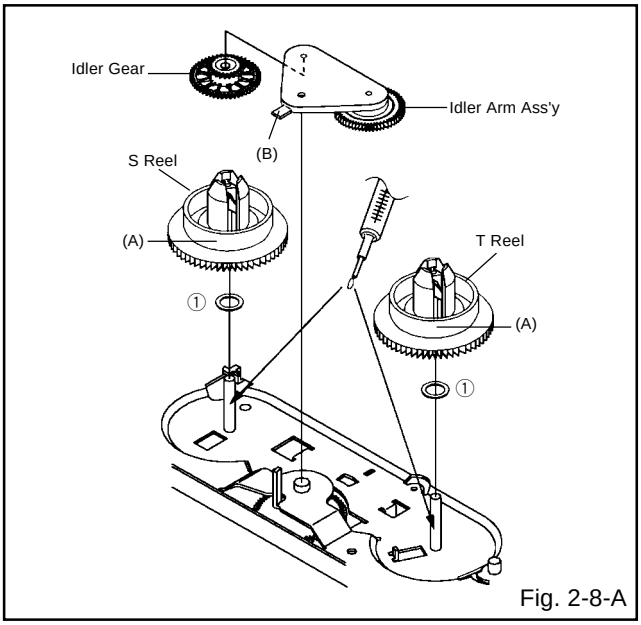


Fig. 2-8-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-8-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.

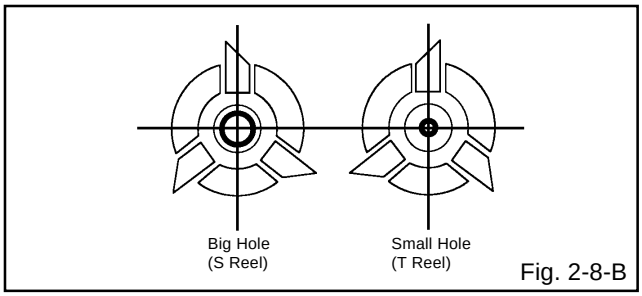


Fig. 2-8-B

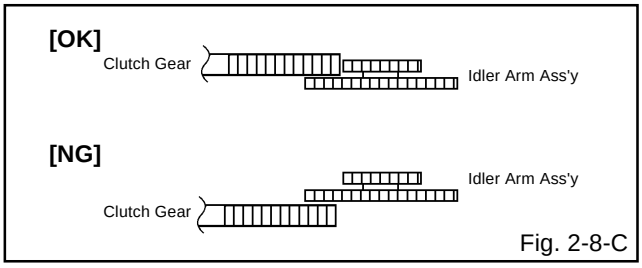


Fig. 2-8-C

DISASSEMBLY INSTRUCTIONS

2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

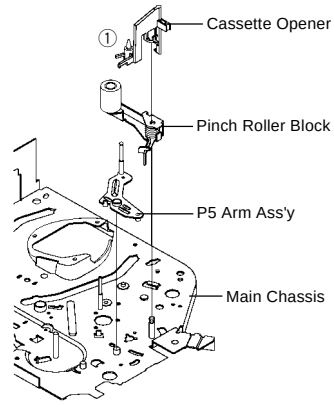


Fig. 2-9-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

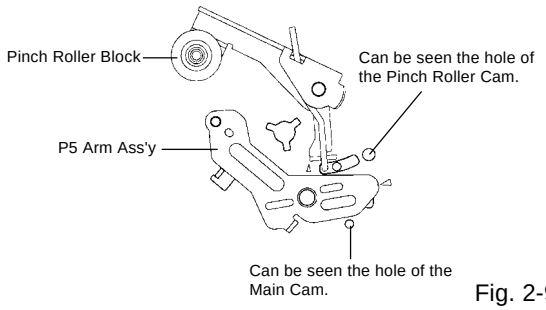


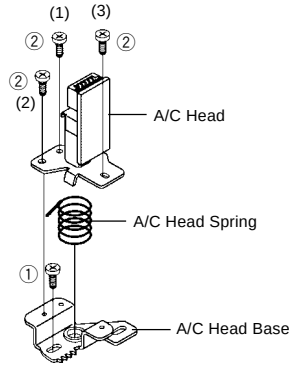
Fig. 2-9-B

2-10: A/C HEAD (Refer to Fig. 2-10-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-10-A

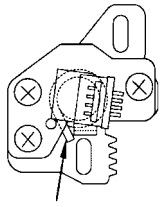
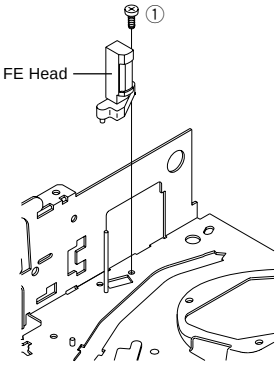


Fig. 2-10-B

2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.



• Screw Torque: 5 ± 0.5kgf•cm
• The FE Head is not installed on the Video Cassette Player.

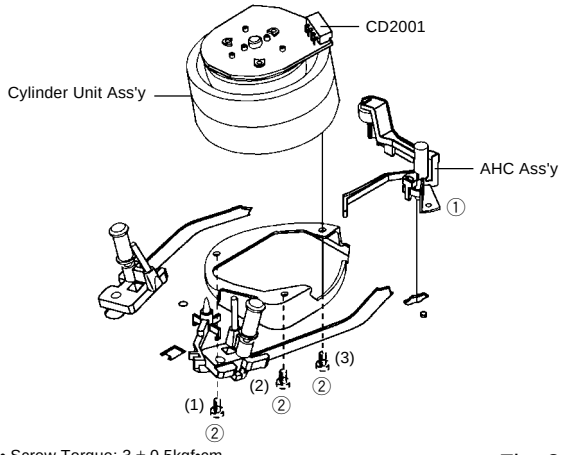
Fig. 2-11

2-12: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: **(CD2001)**.
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



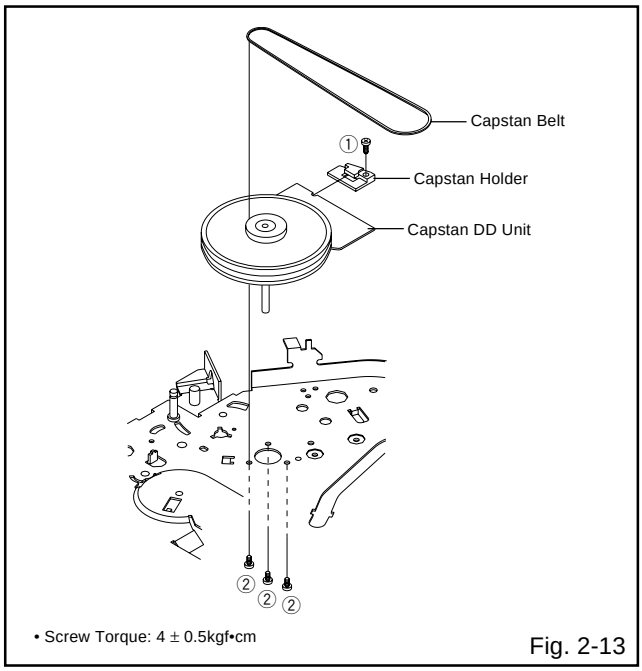
• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-12

DISASSEMBLY INSTRUCTIONS

2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13)

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. Remove the Capstan DD Unit.



• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-13

2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

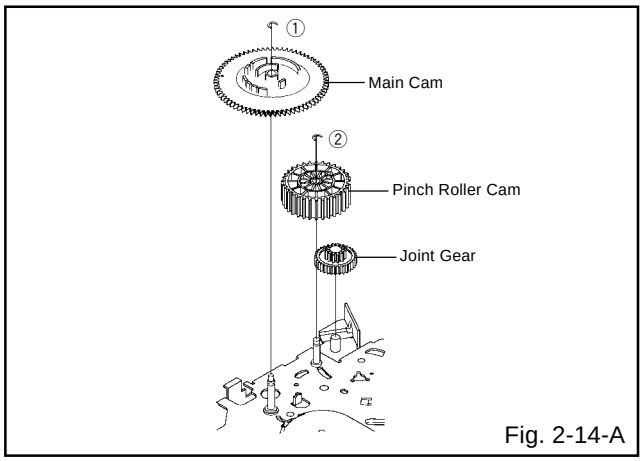


Fig. 2-14-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as shown in the circled section of Fig. 2-14-B so that the markers meet. **(Refer to Fig. 2-14-B)** And also can be seen the Main Chassis hole through the Main Cam maker hole.

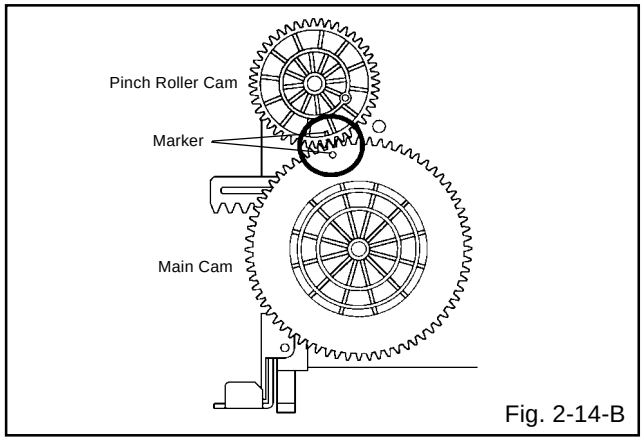


Fig. 2-14-B

2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

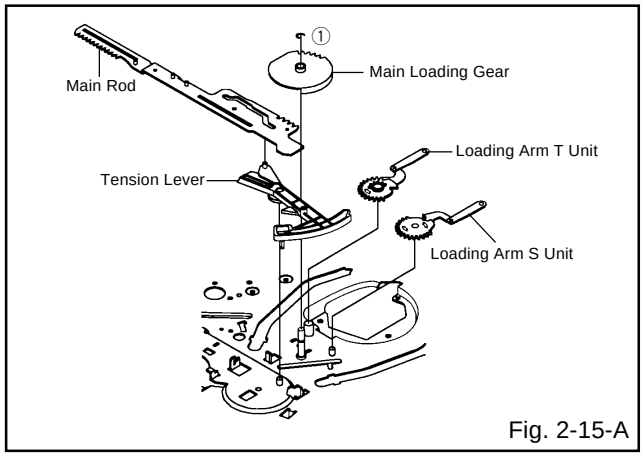


Fig. 2-15-A

NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-15-B)**

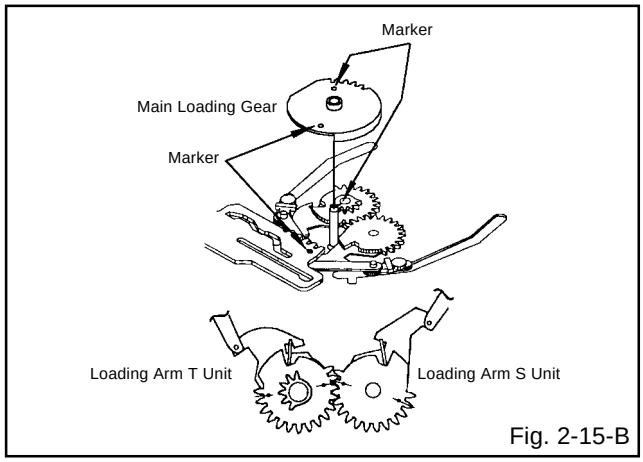


Fig. 2-15-B

DISASSEMBLY INSTRUCTIONS

2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

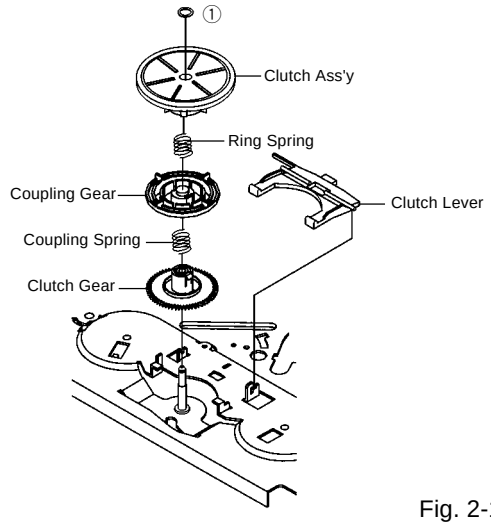


Fig. 2-16-A

NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-16-B)**

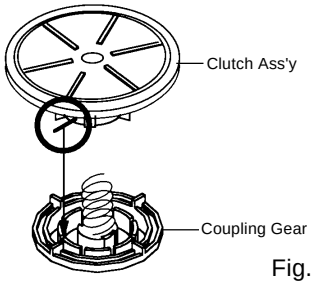


Fig. 2-16-B

2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.

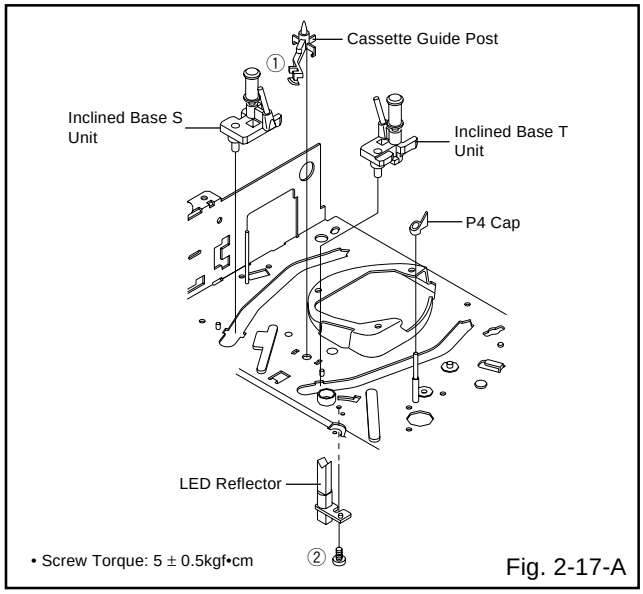


Fig. 2-17-A

NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.

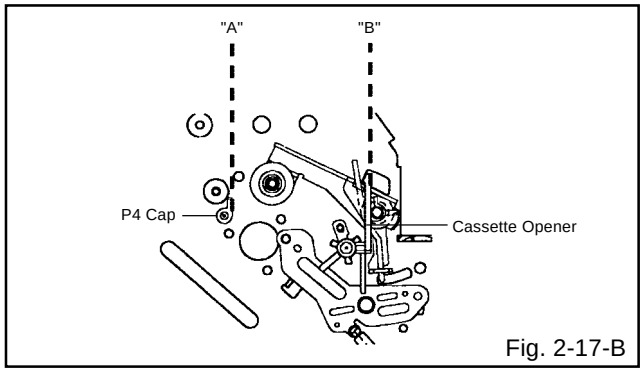


Fig. 2-17-B

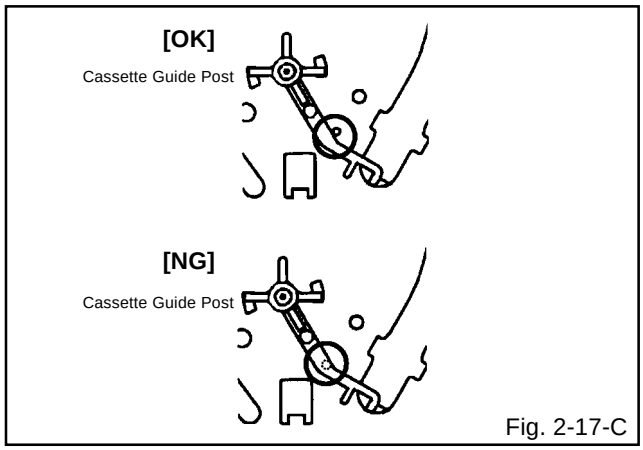


Fig. 2-17-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF DVD DECK PARTS

NOTE

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

3-1: TRAY (Refer to Fig. 3-1-A)

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the 2 supports ① and remove the Tray.

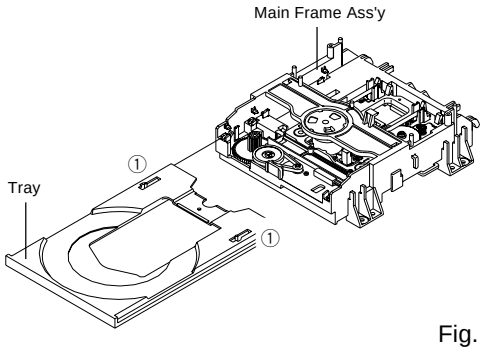


Fig. 3-1-A

NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.

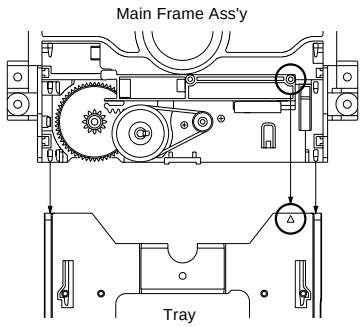


Fig. 3-1-B

3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Main Frame Ass'y.
4. Remove the Main Chassis Ass'y.

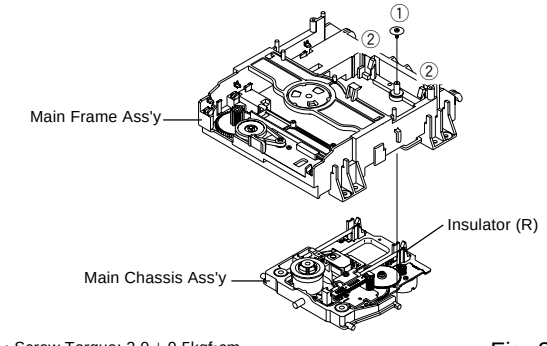


Fig. 3-2-A

NOTE

1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. **(Refer to Fig. 3-2-B)**
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-2-C.

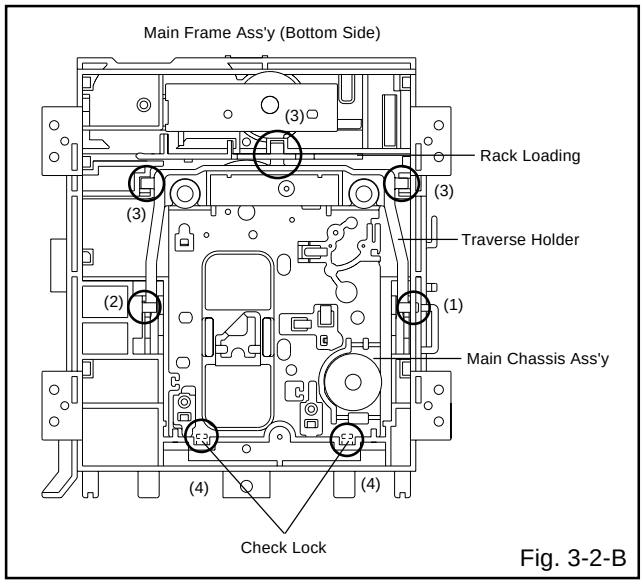


Fig. 3-2-B

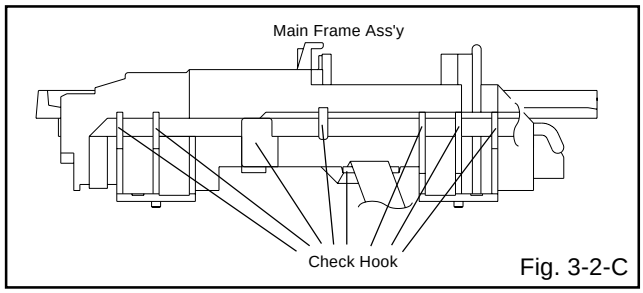


Fig. 3-2-C

3-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 3-3-A)

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Gear.

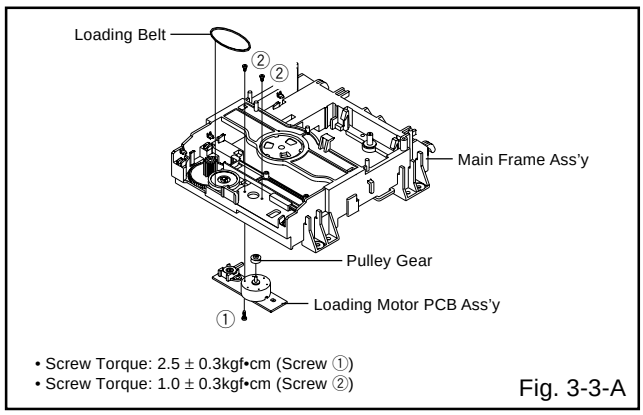


Fig. 3-3-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. In case of the Pulley Motor installation, check if the value of the Fig. 3-3-B is correct.
2. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 3-3-C.
3. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-3-C.

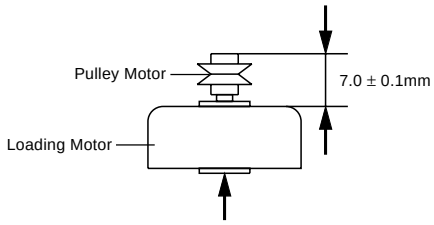


Fig. 3-3-B

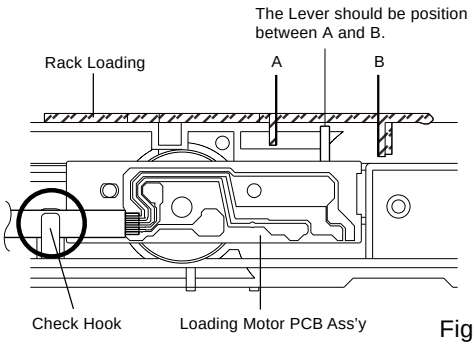


Fig. 3-3-C

3-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 3-4-A)

1. Press down the catcher ① and slide the Rack Loading.
2. Unlock the support ② and remove the Pulley Gear.
3. Remove the Main Gear.

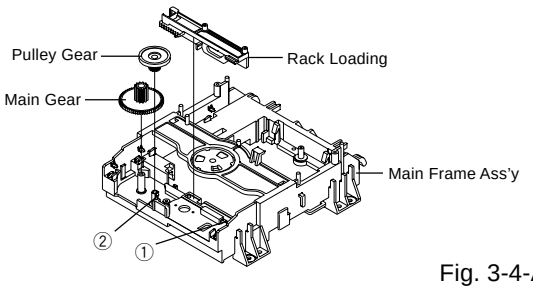


Fig. 3-4-A

NOTE

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 3-4-B.

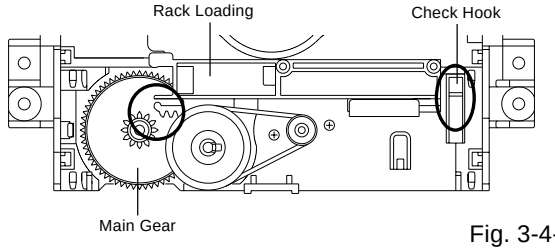


Fig. 3-4-B

3-5: CLAMPER ASS'Y (Refer to Fig. 3-5-A)

1. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports ①.
2. Remove the Clamper Plate, Clamper Magnet and Clamper.

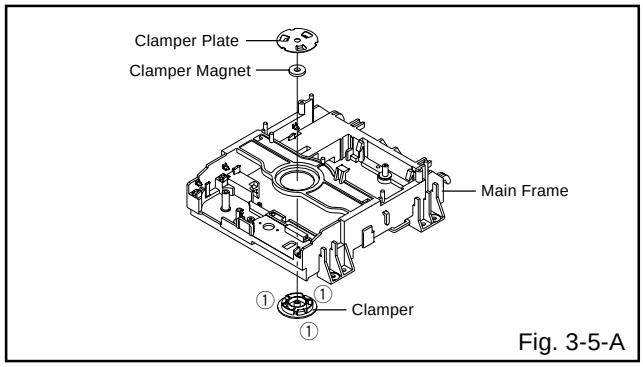


Fig. 3-5-A

NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 3-5-B.

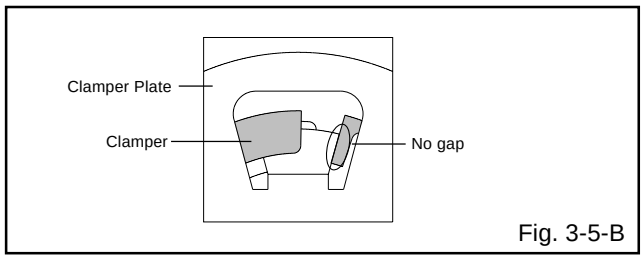


Fig. 3-5-B

3-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 3-6-A)

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

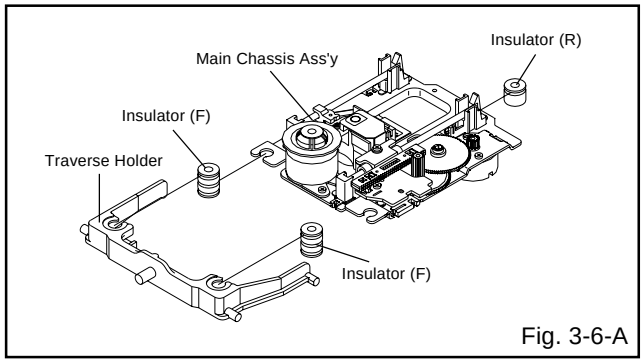


Fig. 3-6-A

NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 3-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 3-6-C.

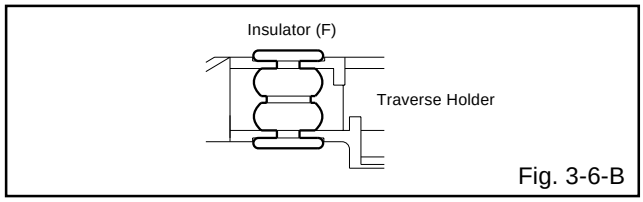


Fig. 3-6-B

DISASSEMBLY INSTRUCTIONS

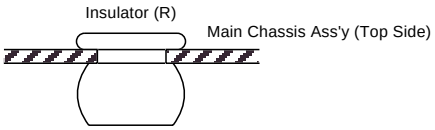
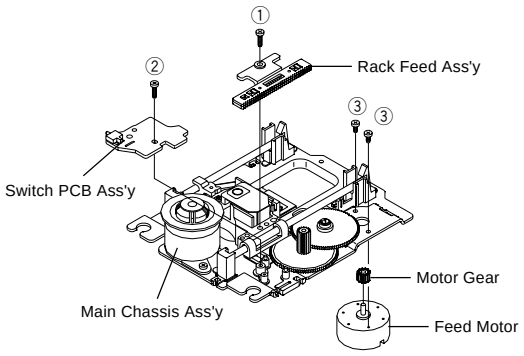


Fig. 3-6-C

3-7: RACK FEED ASS'Y/SWITCH PCB ASS'Y/FEED MOTOR (Refer to Fig. 3-7-A)

1. Remove the screw ①.
2. Remove the Rack Feed Ass'y.
3. Remove the screw ②.
4. Remove the Switch PCB Ass'y.
5. Remove the 2 screw ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.



- Screw Torque: 5.0 ± 0.3kgf•cm (Screw ①)
- Screw Torque: 3.0 ± 0.3kgf•cm (Screw ②)
- Screw Torque: 1.0 ± 0.3kgf•cm (Screw ③)
- Screw Torque: 3.5 ± 0.3kgf•cm (Screw ④)

Fig. 3-7-A

NOTE

1. When pushing the Rack Feed in the direction of the arrow, it should be restored to the original position by the spring force. **(Refer to Fig. 3-7-B)**
2. In case of the Motor Gear installation, check if the value of the Fig. 3-7-C is correct.
3. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-D.
4. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-E.

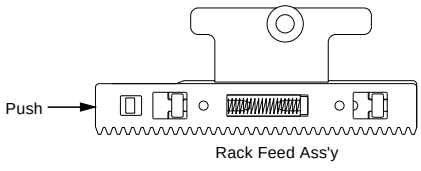


Fig. 3-7-B

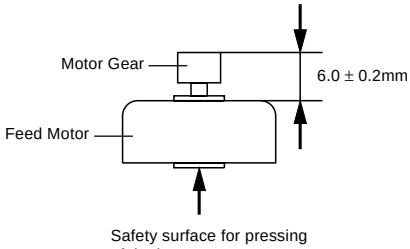


Fig. 3-7-C

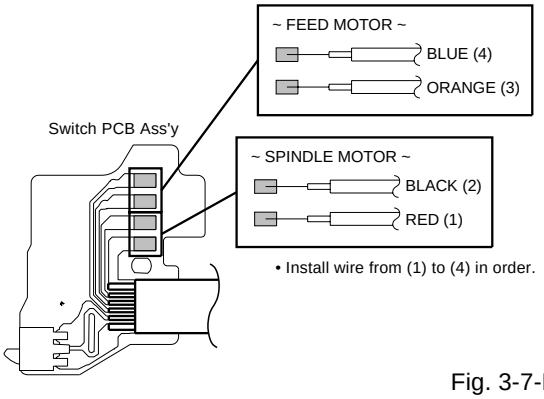


Fig. 3-7-D

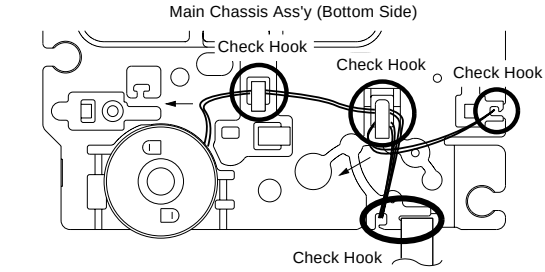


Fig. 3-7-E

3-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 3-8-A to Fig. 3-8-C.

NOTE

1. Do not make the folding lines except the specified positions for the FFC.

[24 pin FFC]

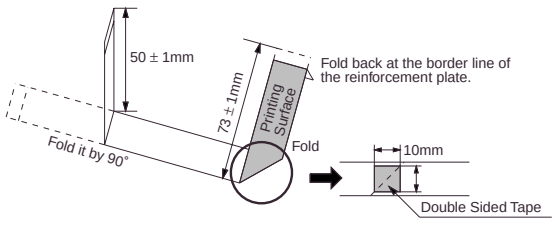


Fig. 3-8-A

[5 pin FFC]

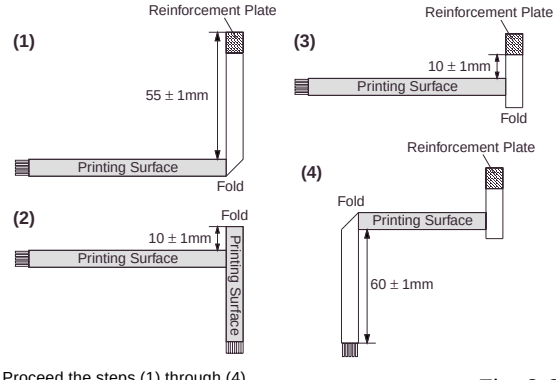
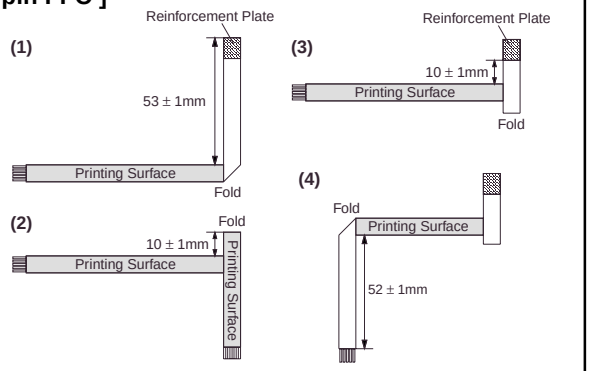


Fig. 3-8-B

DISASSEMBLY INSTRUCTIONS

[6 pin FFC]



• Proceed the steps (1) through (4).

Fig. 3-8-C

DISASSEMBLY INSTRUCTIONS

4. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 4-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

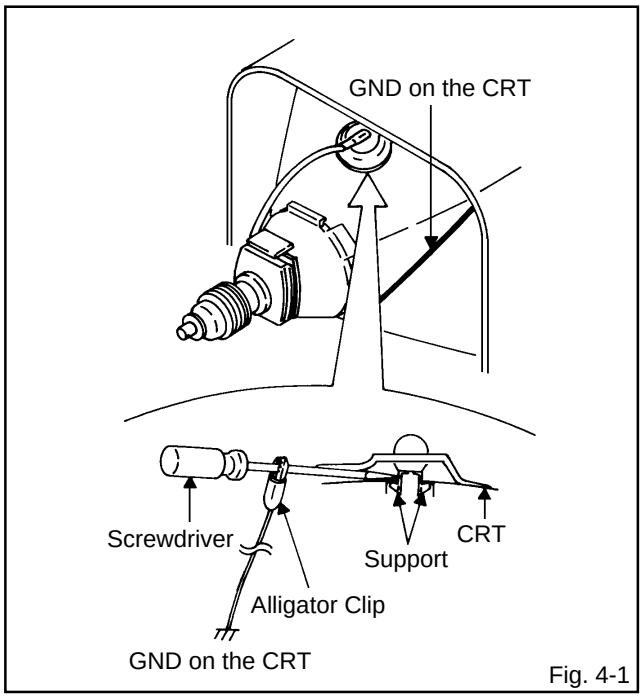


Fig. 4-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 4-2.)**

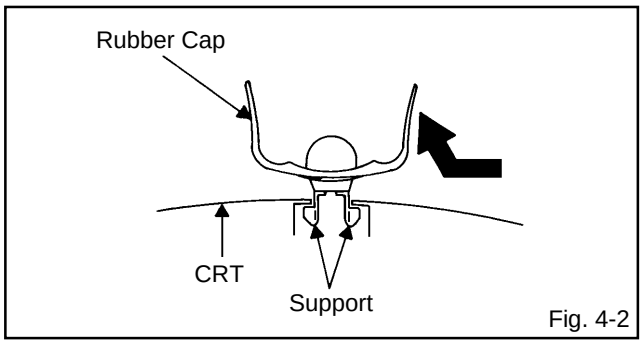


Fig. 4-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 4-3.)**

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

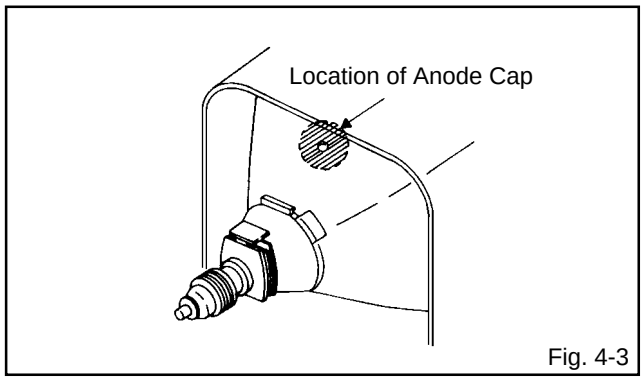


Fig. 4-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 4-4.)**

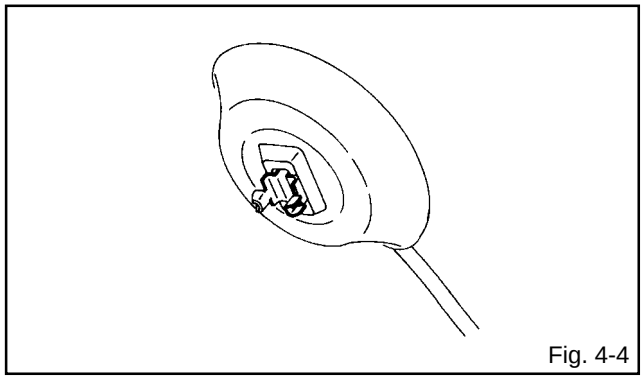


Fig. 4-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 4-5**.

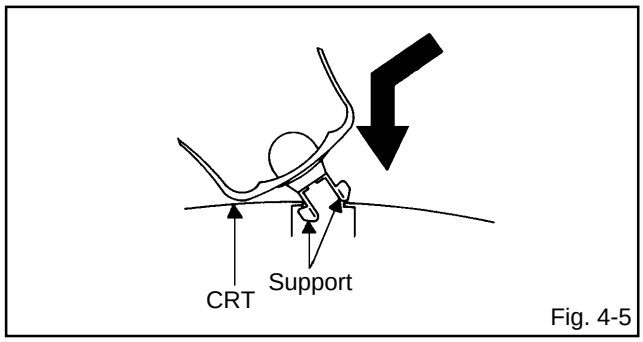


Fig. 4-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 5-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

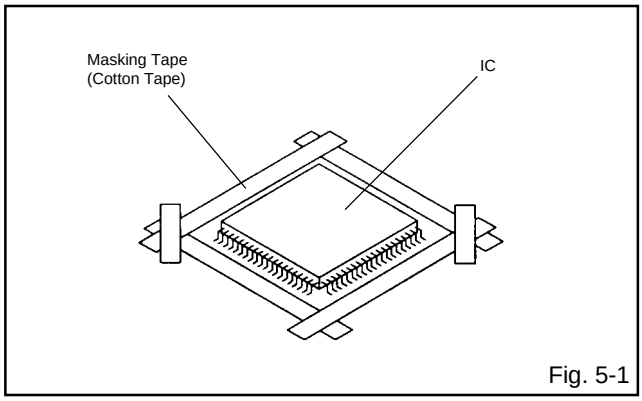


Fig. 5-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 5-2.)**

   NOTE

   Do not rotate or move the IC back and forth , until IC can move back and forth easily after desoldering the leads completely.

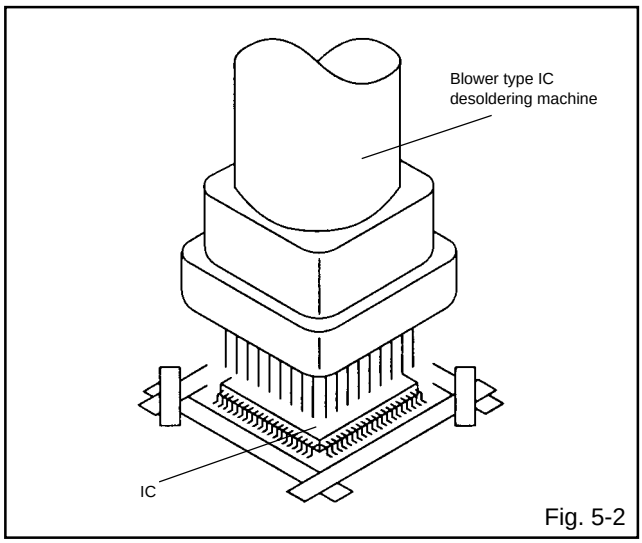


Fig. 5-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 5-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

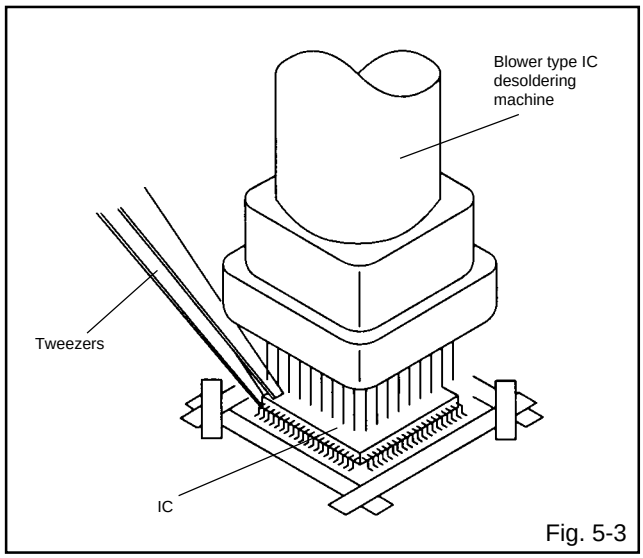


Fig. 5-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 5-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

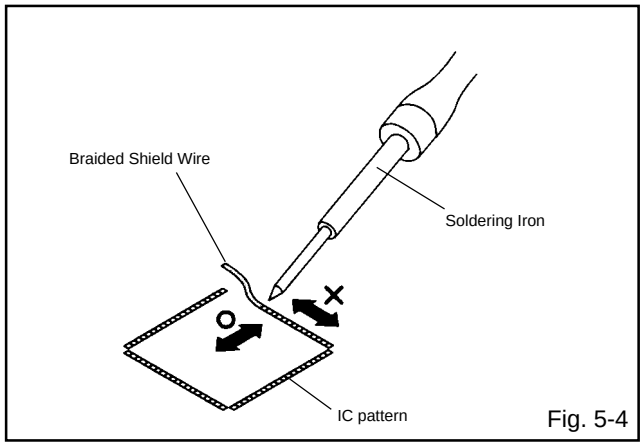


Fig. 5-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 5-5.)**

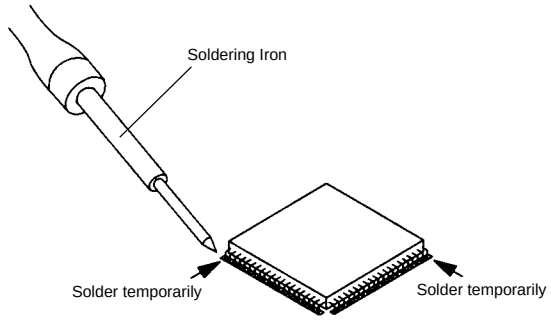


Fig. 5-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**

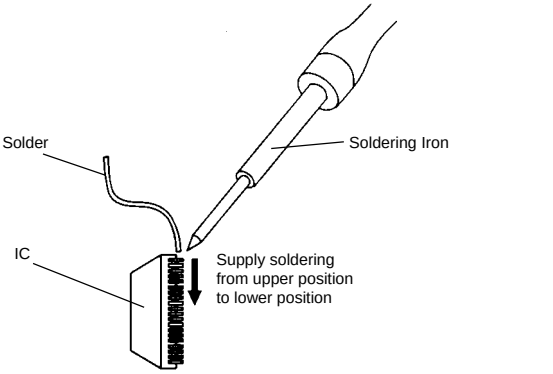


Fig. 5-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

   NOTE

   Do not absorb the solder to excess.

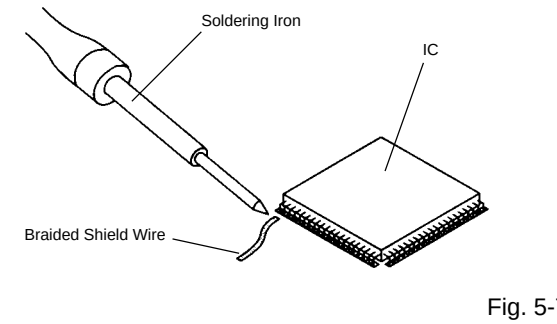


Fig. 5-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**

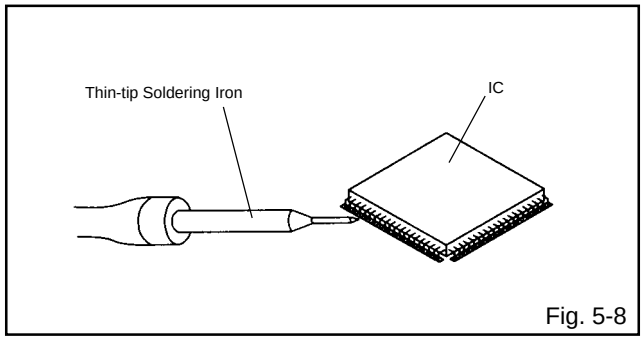


Fig. 5-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flip-flop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than the standard time (second).
The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the channel setting, POWER ON total hours and PLAY/REC total hours.
TV mode	VOL. DOWN (Minimum)	2	2 sec.	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VCR mode (Playback)	VOL. DOWN (Minimum)	3	2 sec.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VCR mode (Playback)	VOL. DOWN (Minimum)	4	2 sec.	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VCR mode (Playback)	VOL. DOWN (Minimum)	5	2 sec.	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
TV mode	VOL. DOWN (Minimum)	6	2 sec.	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
TV mode	VOL. DOWN (Minimum)	7	2 sec.	Releasing of PROTECTION PASSWORD.
TV mode	VOL. DOWN (Minimum)	8	2 sec.	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
ALL mode	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	REC/OTR	4	2 sec.	Initialization of factory DVD data. NOTE: Do not use this for normal servicing. The function will only work without the setting of DVD disc at DVD mode.
DVD mode (No disc)	STOP (DVD)	7	3 sec.	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.

Method	Operations
Press the following remocon keys continuously. SETUP → SUBTITLE → 3 → AUDIO → 0	Tray cannot be opened. Refer to the “TRAY LOCK”. NOTE: No indications on the screen when the Tray Lock is setting.
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the “MECHANICAL ADJUSTMENT” (GUIDE ROLLER) and “ELECTRICAL ADJUSTMENT” (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the “PREPARATION FOR SERVICING”

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.
Parts replacing time does not mean the life span for individual parts.
Also, long term storage or misuse may cause transformation and aging of rubber parts.
The following list means standard hours, so the checking hours depends on the conditions.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

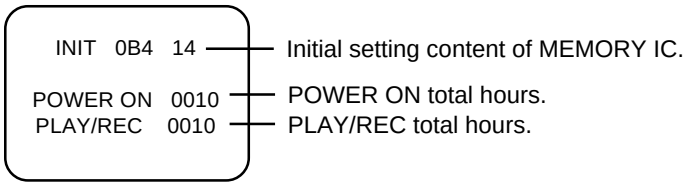
■ : Clean
● : Check it and if necessary, replace it.

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: If you set factory initialization, the total hours is reset to "0".
The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
4. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

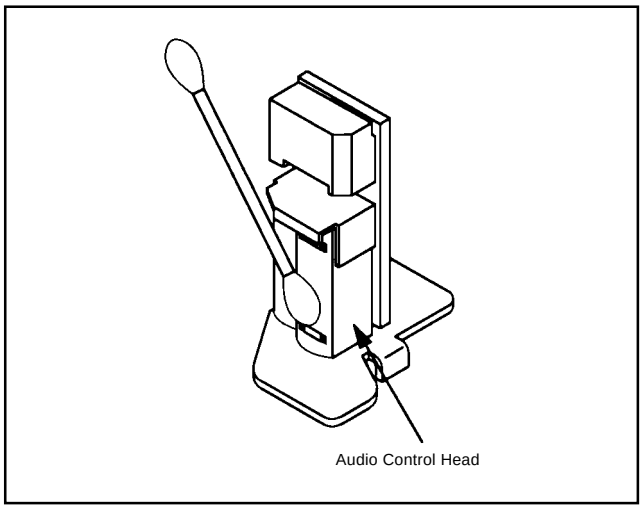
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with a cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

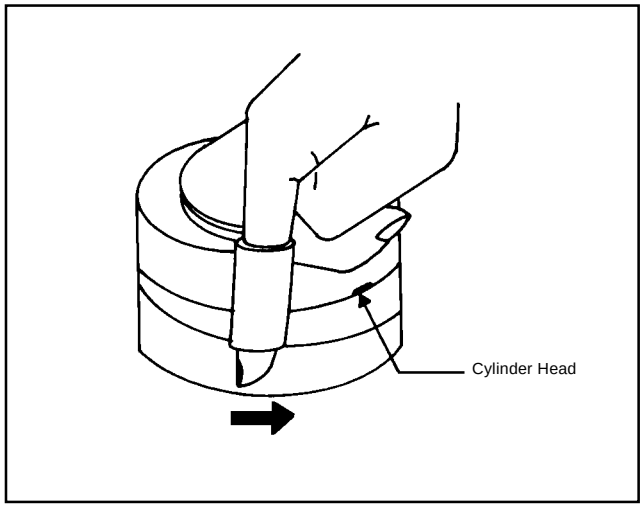
When cleaning the tape transport system, use gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.
No need to set data after position INI 11F due to the adjustment value.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
0B0	---	---	---	---	14	10	80	86	C0	4C	95	C7	C4	C9	0E	E1
0C0	04	6B	98	B2	00	05	63	65	66	27	1B	3B	2A	17	15	1B
0D0	3A	0F	11	20	45	64	64	65	64	CA	00	37	87	0C	87	5F
0E0	00	DF	6F	F9	5F	01	FF	23	F9	6F	9F	B2	9A	97	8C	B2
0F0	A0	C4	20	08	BF	50	2B	B5	C1	41	00	2D	0C	0E	7A	00
100	27	03	57	15	00	00	00	00	00	00	00	00	00	00	82	00
110	00	03	04	20	40	20	A0	00	00	40	00	00	00	97	30	01

Table 1

1. Turn on the POWER, and set to the TV mode.
2. Enter DATA SET mode by setting VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

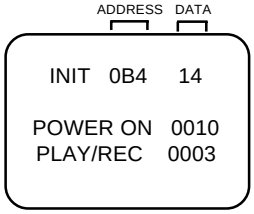


Fig. 1

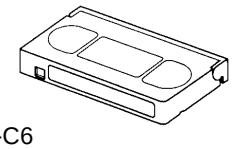
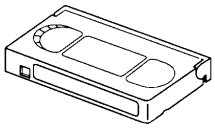
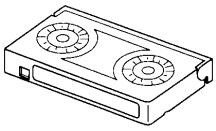
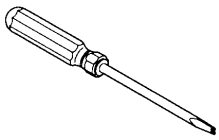
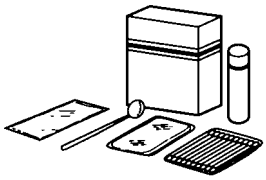
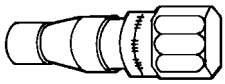
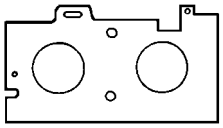
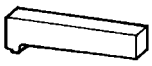
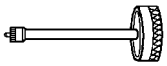
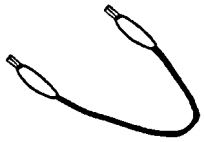
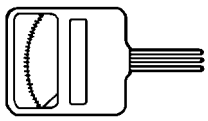
4. ADDRESS is now selected and should "blink". Using the UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using UP/DOWN button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

10. Turn on the POWER, and set to the TV mode.
11. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

Alignment Tape  ST-C6 ST-C7	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
JG185 Tentelometer 			

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Remove the TV/VCR/DVD block from the set.
   Be sure to place the parts on a paper so that they have no short-circuit each other.
2. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

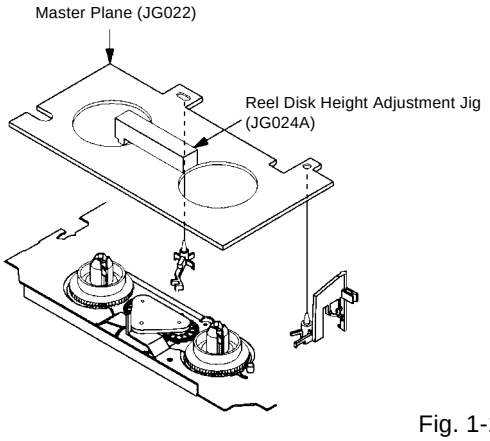


Fig. 1-1-A

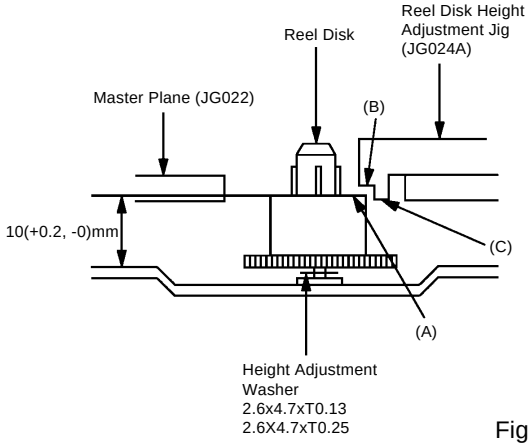


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

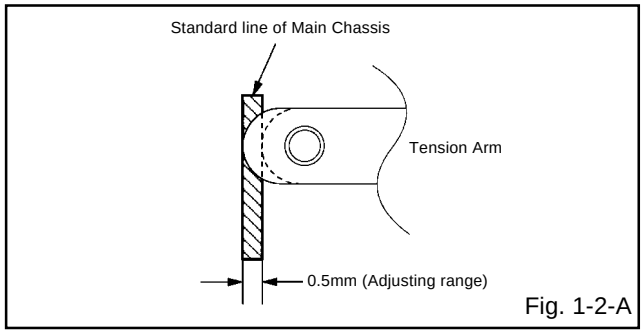


Fig. 1-2-A

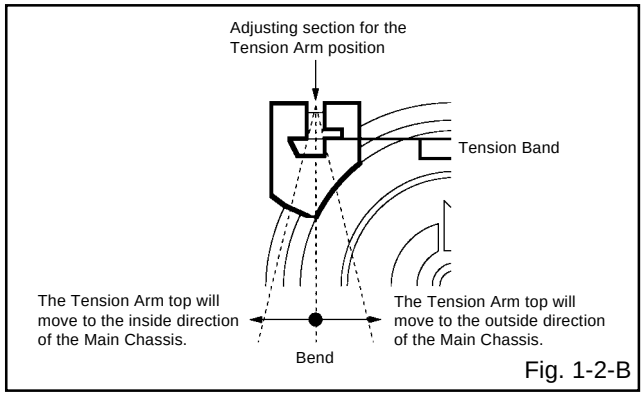


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

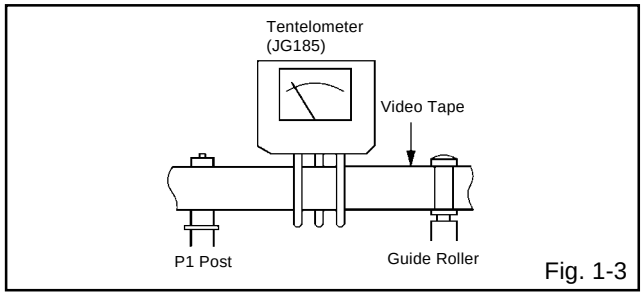


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

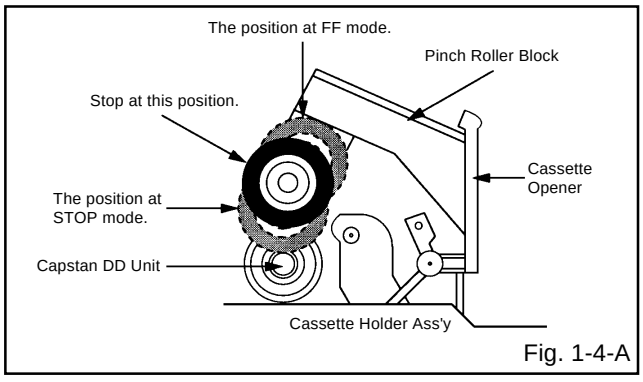


Fig. 1-4-A

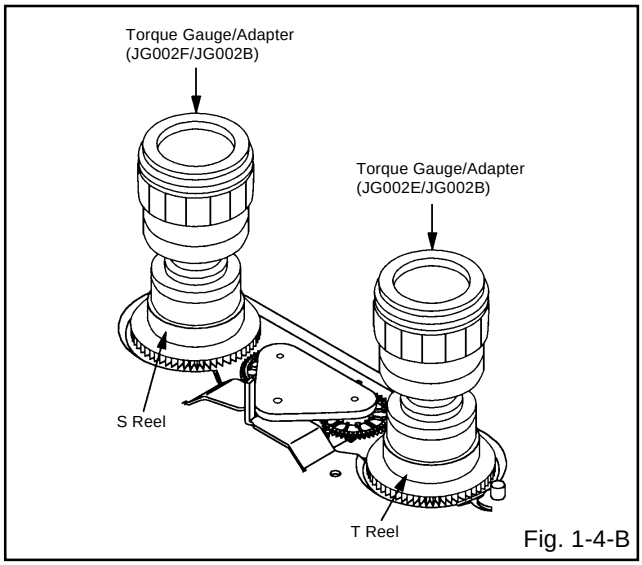


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4502 (Envelope)** and CH-2 to **TP4501 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

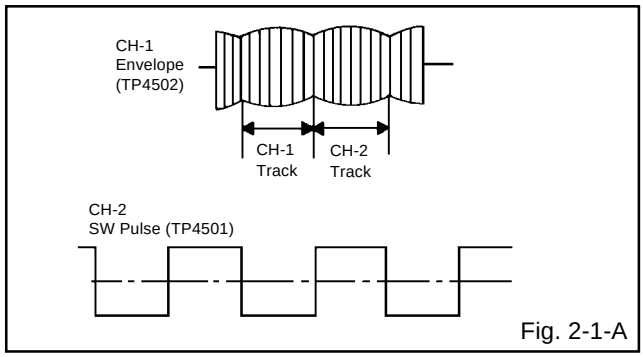


Fig. 2-1-A

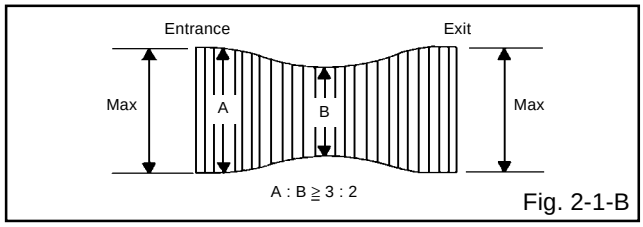


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

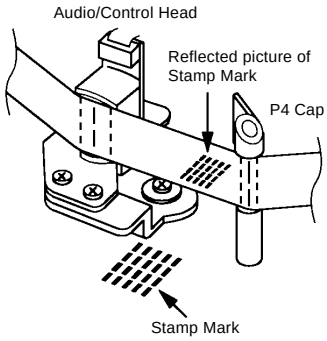


Fig. 2-2-A

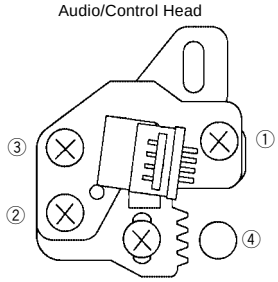


Fig. 2-2-B

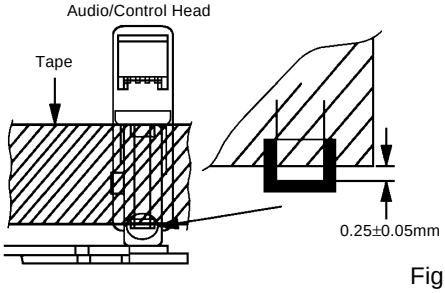


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4501**, CH-2 to **TP4502** and CH-3 to **Audio Out of 21 Pin Jack**.
6. Playback the VHS Alignment Tape.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

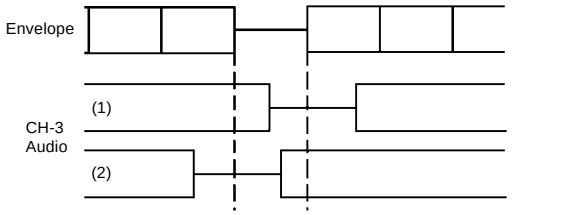
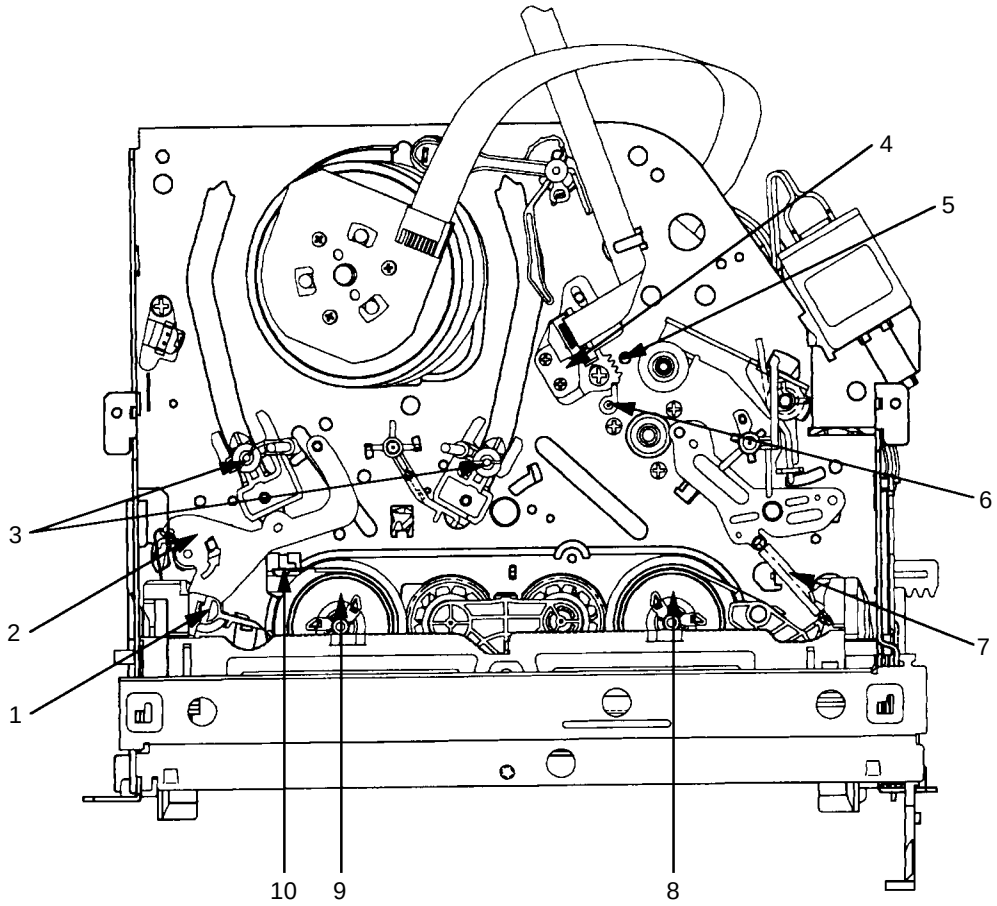


Fig. 2-3

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting section for the Tension Arm position

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C1003** and GND at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

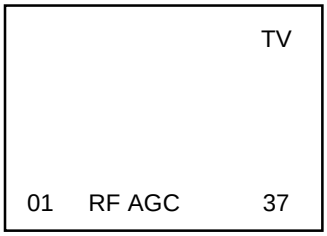


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	CUT OFF	20	CONTRAST CENT
01	RF AGC	21	CONTRAST MAX
02	AGC GAIN	22	CONTRAST MIN
03	R DRIVE	23	COLOR CENT
04	R CUTOFF	24	COLOR MAX
05	G DRIVE	25	COLOR MIN
06	G CUTOFF	26	---
07	B DRIVE	27	SHARP
08	H POSI	28	M R CUT OFF
09	V POSI	29	M G CUT OFF
10	---	30	M B CUT OFF
11	V SIZE	31	H POS OSD
12	---	32	---
13	VCO COARSE	33	---
14	VCO FINE	34	---
15	VCO COARSE L1	35	CVBS OUT
16	VCO FINE L1	36	APR THRESHOLD
17	BRIGHT CENT	37	BELL FILTER
18	BRIGHT MAX	38	BANDPASS
19	BRIGHT MIN	39	REC AGC

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Playback the alignment tape.
2. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
3. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

4. Connect CH-1 on the oscilloscope to **TP4502** and CH-2 to **TP4501**.
5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Stop the alignment tape.

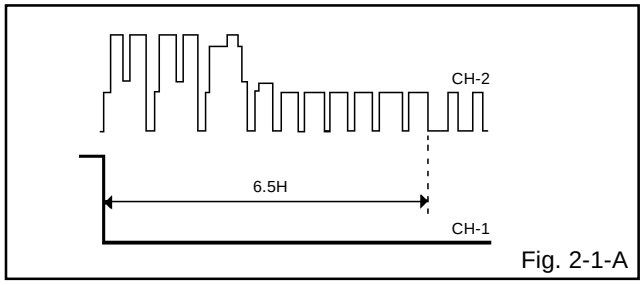


Fig. 2-1-A

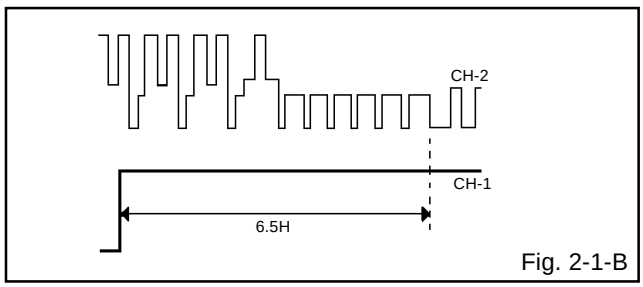


Fig. 2-1-B

2-2: VCO

(MONITOR TUNER)

1. Place the set in Aging Test for more than 10 minutes.
2. Connect the oscillator (39.5MHz) to **TP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "VCO COARSE".
4. Press the LEFT/RIGHT button on the remote control until the "OK" appear on the screen. If the "OK" is not displayed, select the "-" side on the changed from "+" to "-".
5. Press the channel button **(14)** to set to "VCO FINE" mode.
6. Press the LEFT/RIGHT button on the remote control to select the 5 step down point from the upper limit on the "OK".
   (Example: In case of the "OK" point 41, select 36.)

ELECTRICAL ADJUSTMENTS

(REC TUNER)

1. Place the set in Aging Test for more than 10 minutes.
2. Connect the oscillator (39.5MHz) to **TP6001**.
3. Connect the digital voltmeter between the **pin 7 of CP603** and the **pin 1 (GND) of CP603**.
4. Adjust the **L6006** until the digital voltmeter is 2.4 ± 0.1V.

2-3: RF AGC

(MONITOR TUNER)

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the UHF (63 ± 1dB).
3. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "RF AGC".
5. Press the LEFT/RIGHT button on the remote control until the digital voltmeter is 2.5 ± 0.1V.

(REC TUNER)

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the UHF (63 ± 1dB).
3. Connect the digital voltmeter between the **pin 6 of CP603** and the **pin 1 (GND) of CP603**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(39)** on the remote control to select "REC AGC".
5. Press the LEFT/RIGHT button on the remote control until the digital voltmeter is 3.3 ± 0.1V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to **TP401**.
2. Place the set in AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR1701** until the digital voltmeter is 115 ± 1V.

2-5: FOCUS

1. Receive a broadcast.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "H POSI (50)".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.
5. Receive the cross hatch signal of NTSC. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-7: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-6.

1. Receive the monoscope pattern from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "V POSI (50)".
4. Check if the step No. V. POSI (50) is "05".
5. Adjust the **VR402** until the horizontal line becomes fit to the notch of the shadow mask.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness and contrast to normal position.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "V POSI (60)".
10. Check if the step No. V. POSI (60) is "15".

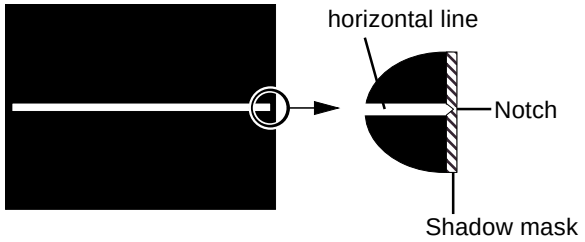


Fig. 2-2

2-8: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-7.

1. Receive the monoscope pattern from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "V SIZE (50)".
4. Adjust by using the LEFT/RIGHT button on the remote control so that the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.
5. Receive a broadcast and check if the picture is normal.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-9: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-8. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

ELECTRICAL ADJUSTMENTS

2-10: HORIZONTAL POSITION OSD

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "H POS OSD".
3. Press the LEFT/RIGHT button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-2)**

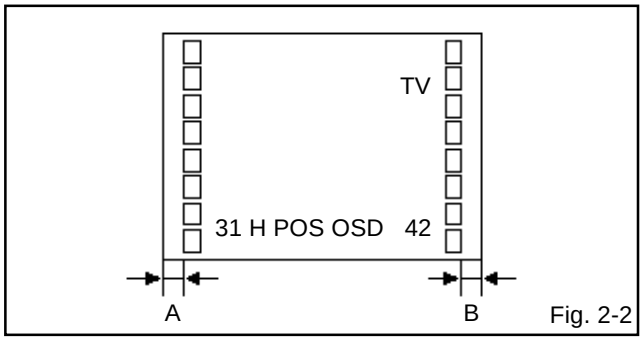


Fig. 2-2

2-11: CUT OFF

1. Place the set in AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Place the set in Aging Test for more than 15 minutes.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(00)** on the remote control to select "CUT OFF".
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-12: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "R DRIVE".
5. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", "M R CUTOFF" or "M G CUTOFF".
6. Adjust the LEFT/RIGHT button on the remote control to whiten the R DRIVE, G DRIVE, M R CUT OFF, and M G CUT OFF at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is achieved.

2-13: BRIGHT CENT

1. Receive the PAL black pattern*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRIGHT CENT".
4. Press the LEFT/RIGHT button on the remote control until the screen begin to shine.
5. Receive the PAL black pattern*. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the DVD button on the remote control to set to the DVD mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRIGHT CENT".
9. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

*The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

2-14: CONTRAST CENT

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(20)** on the remote control to select "CONTRAST CENT".
2. Press the LEFT/RIGHT button on the remote control until the contrast step No. becomes "46".
3. Receive a broadcast and check if the picture is normal.
4. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the DVD button on the remote control to set to the DVD mode.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRIGHT CENT".
7. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

ELECTRICAL ADJUSTMENTS

2-15: COLOR CENT

1. Receive the PAL color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color to normal position.
3. Connect the oscilloscope to **TP024**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the LEFT/RIGHT button on the remote control until the red color level is adjusted to 90 ± 5% of the white level. **(Refer to Fig. 2-3)**
7. Receive the PAL color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COLOR CENT".
10. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

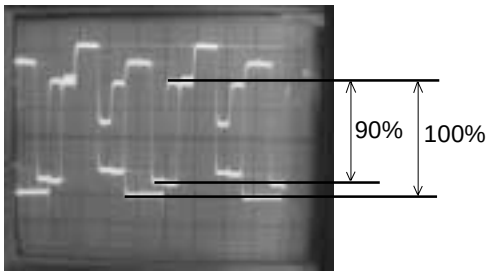


Fig. 2-3

2-16: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	STEP NO.
02	AGC GAIN	00
04	R CUTOFF	31
06	G CUTOFF	31
07	B DRIVE	31
15	VCO COARSE L1	00
16	VCO FINE L1	00
18	BRIGHT MAX	55
19	BRIGHT MIN	10
21	CONTRAST MAX	63
22	CONTRAST MIN	10
24	COLOR MAX	50
25	COLOR MIN	10
27	SHARP	05
30	M B CUT OFF	50
35	CVBS OUT	25
36	APR THRESHOLD	05
37	BELL FILTER	00
38	BANDPASS	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

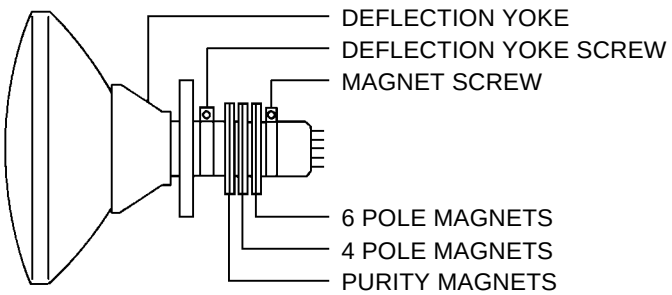


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

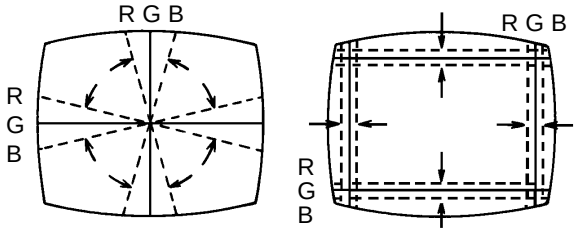
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

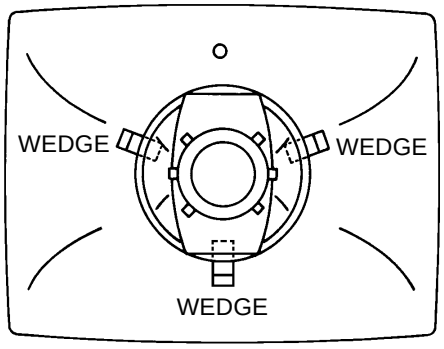
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

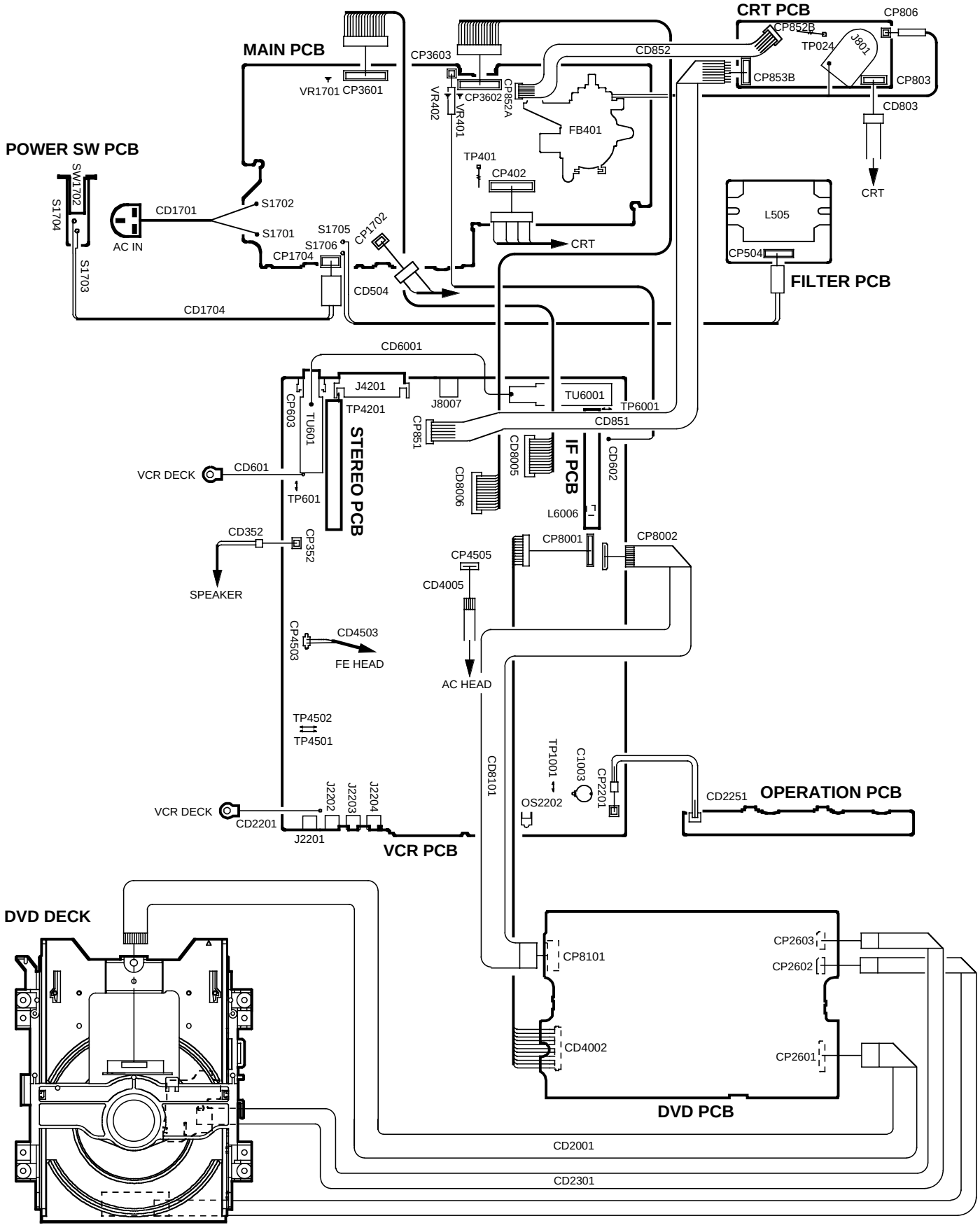


WEDGE POSITION

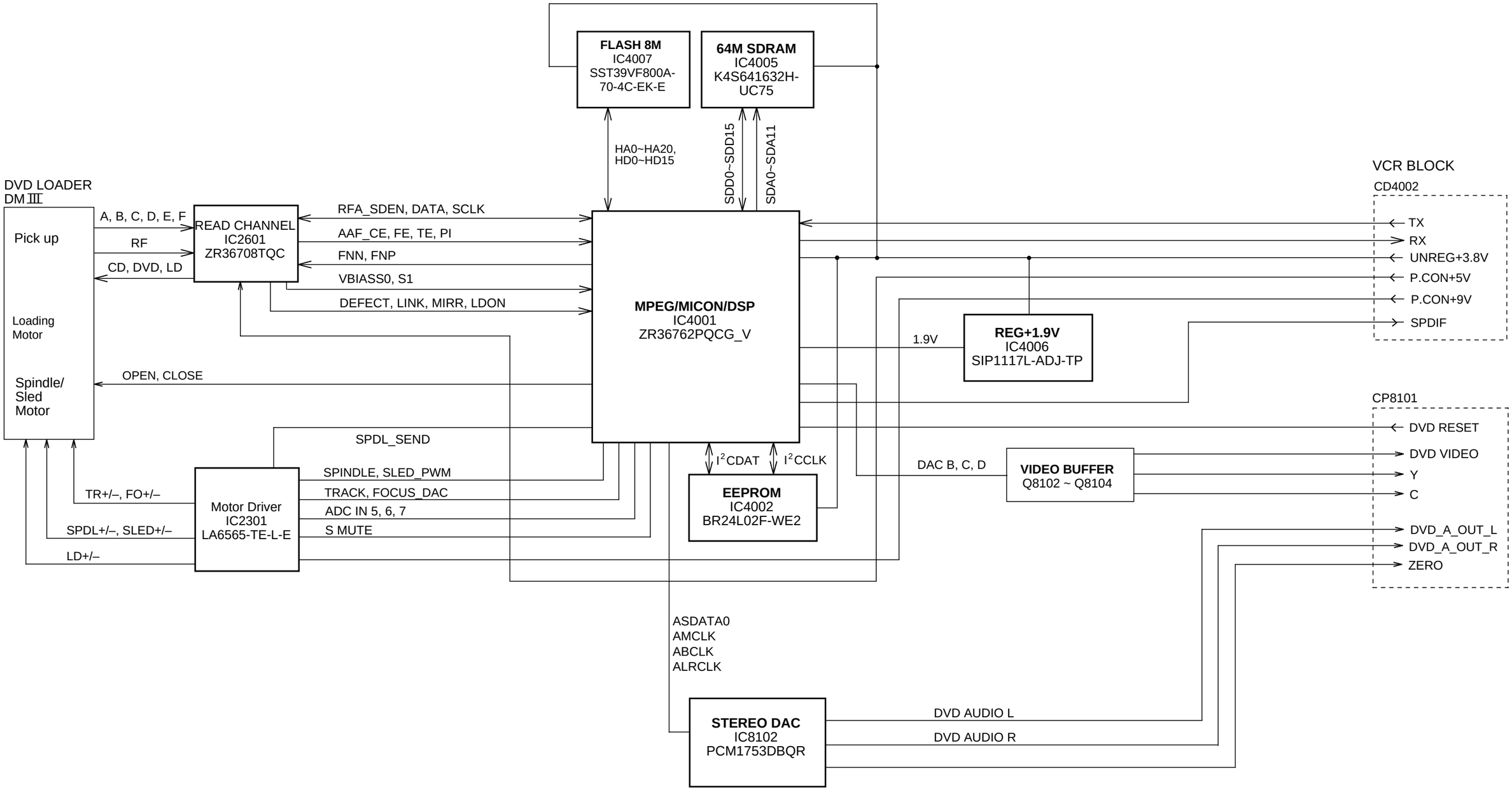
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

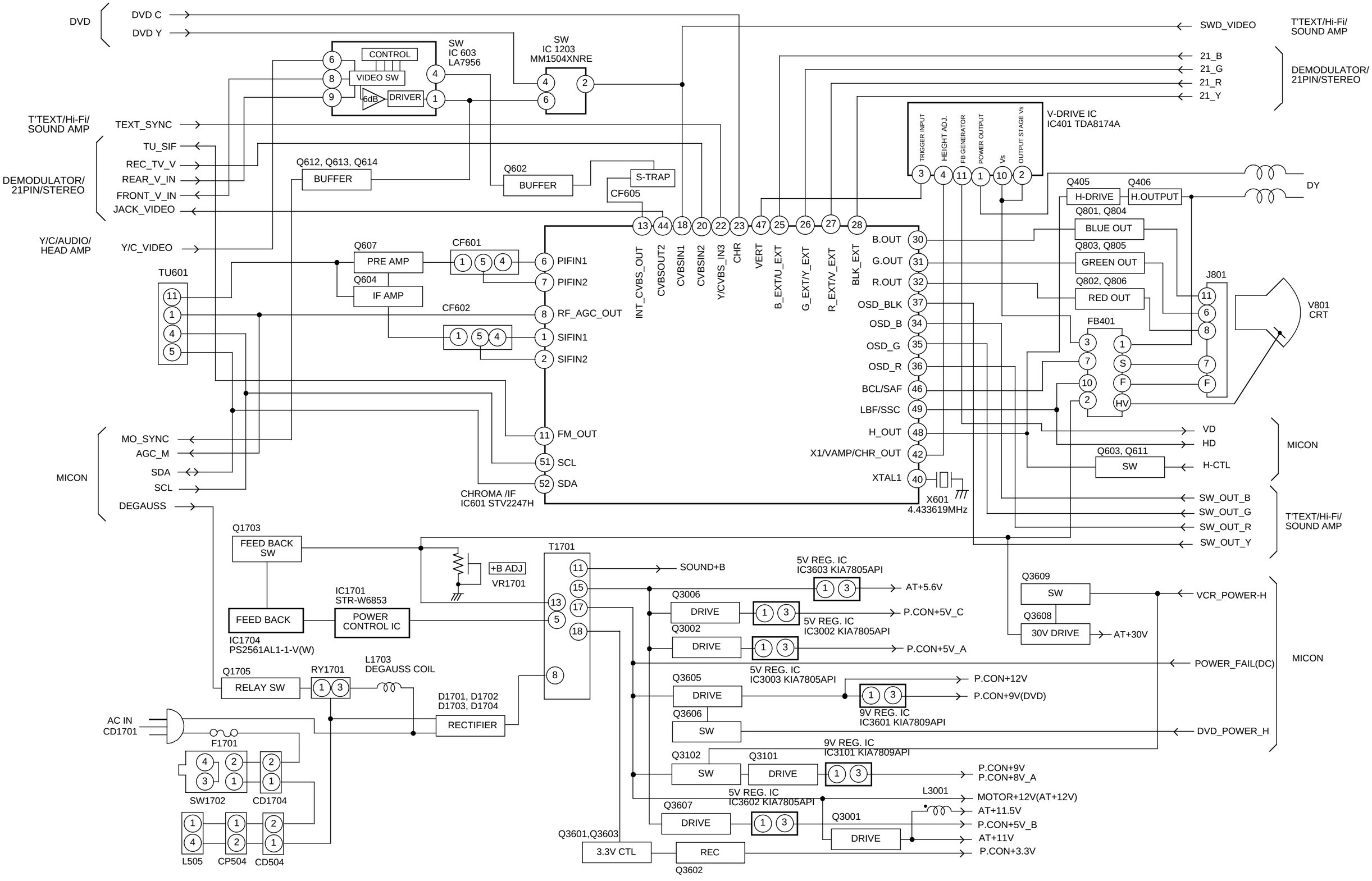
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



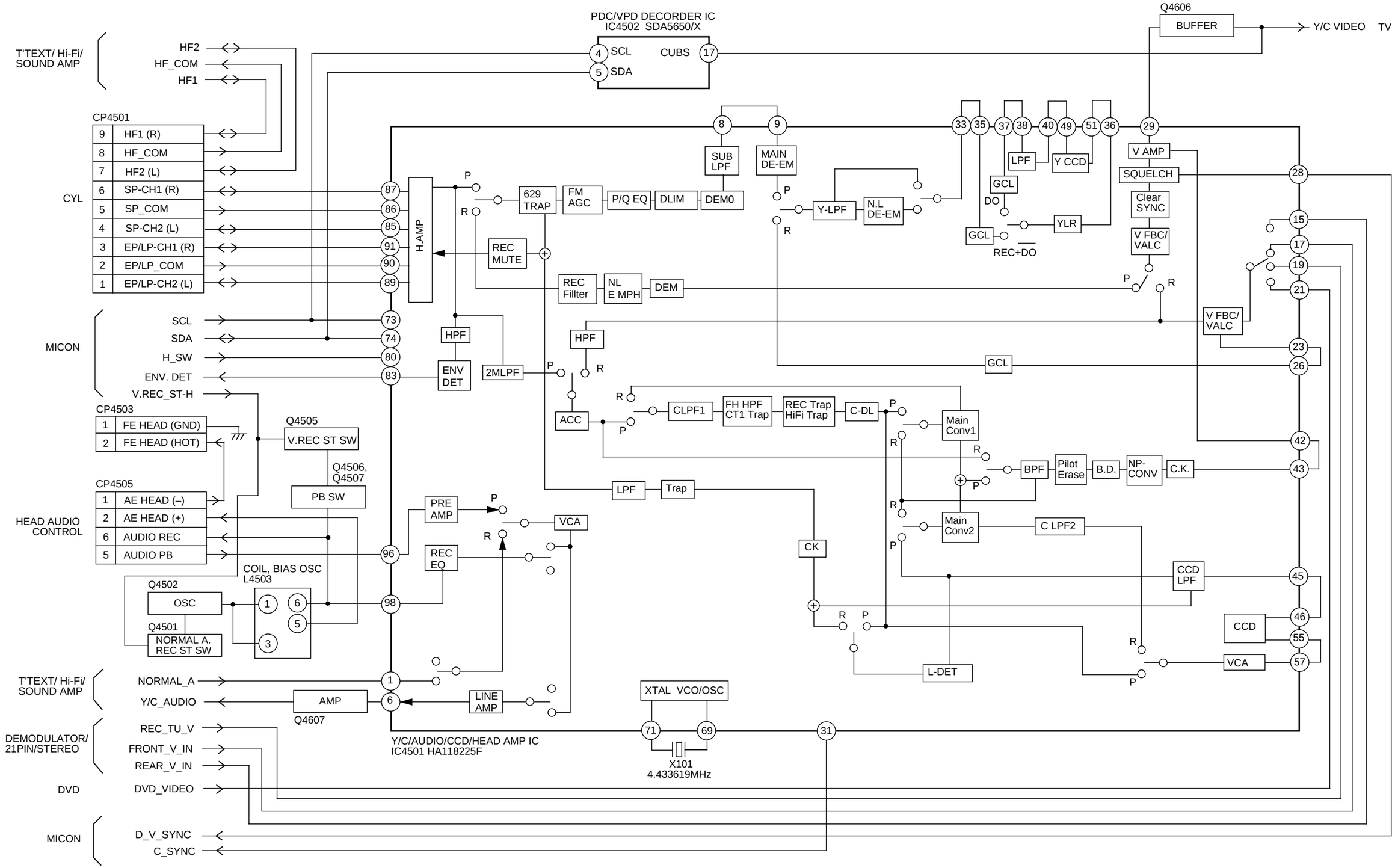
DVD BLOCK DIAGRAM



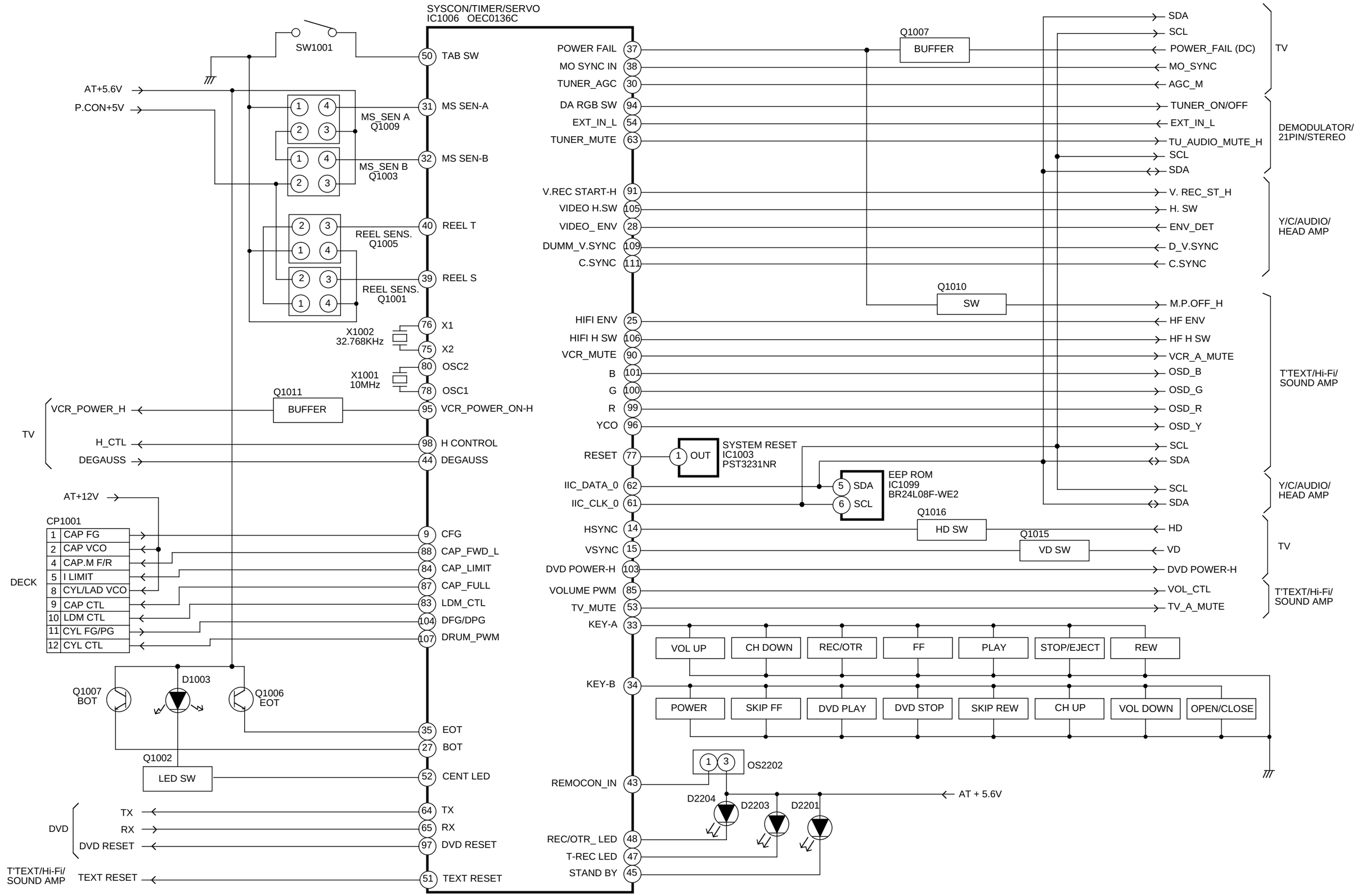
TV BLOCK DIAGRAM



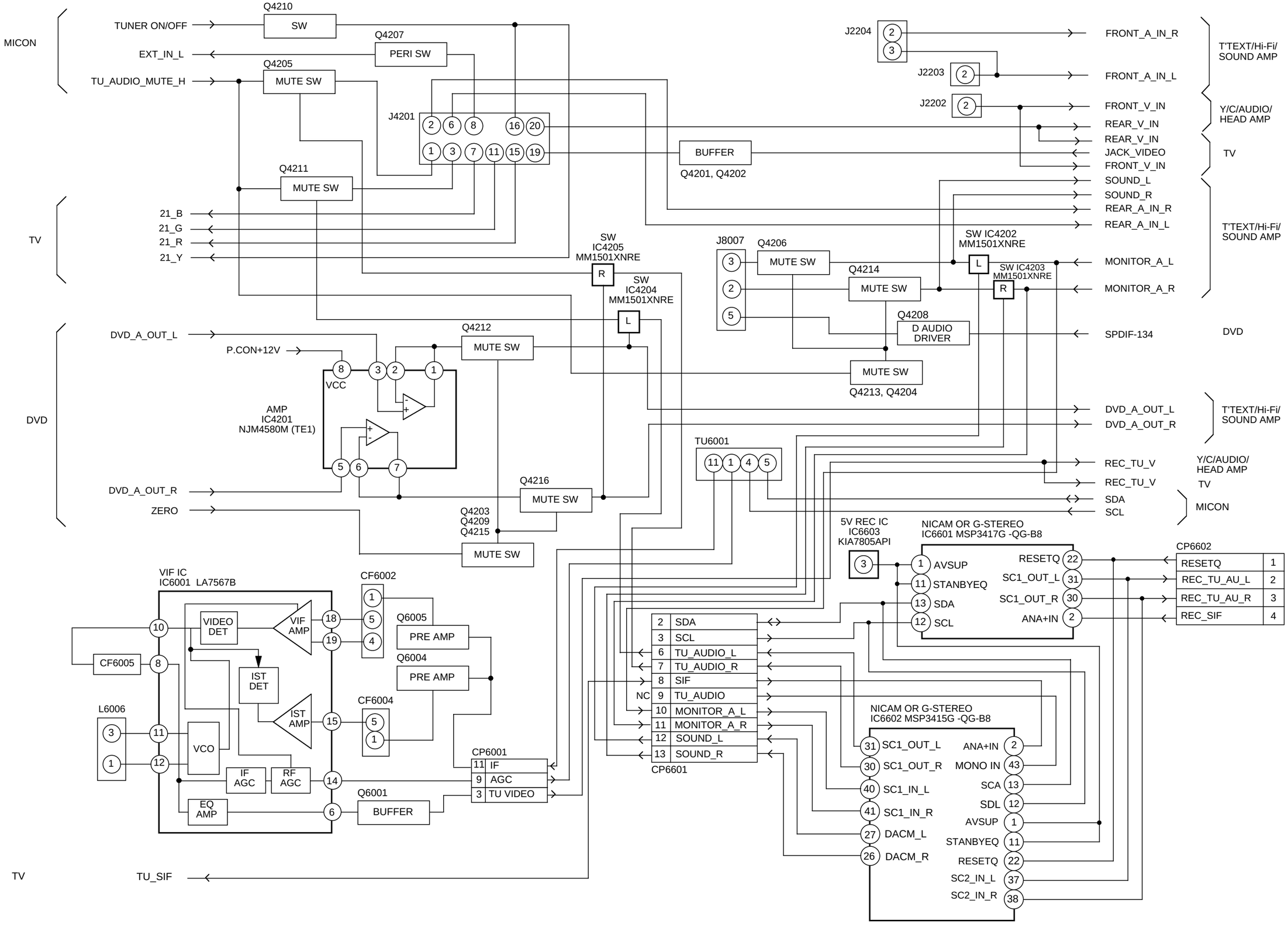
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



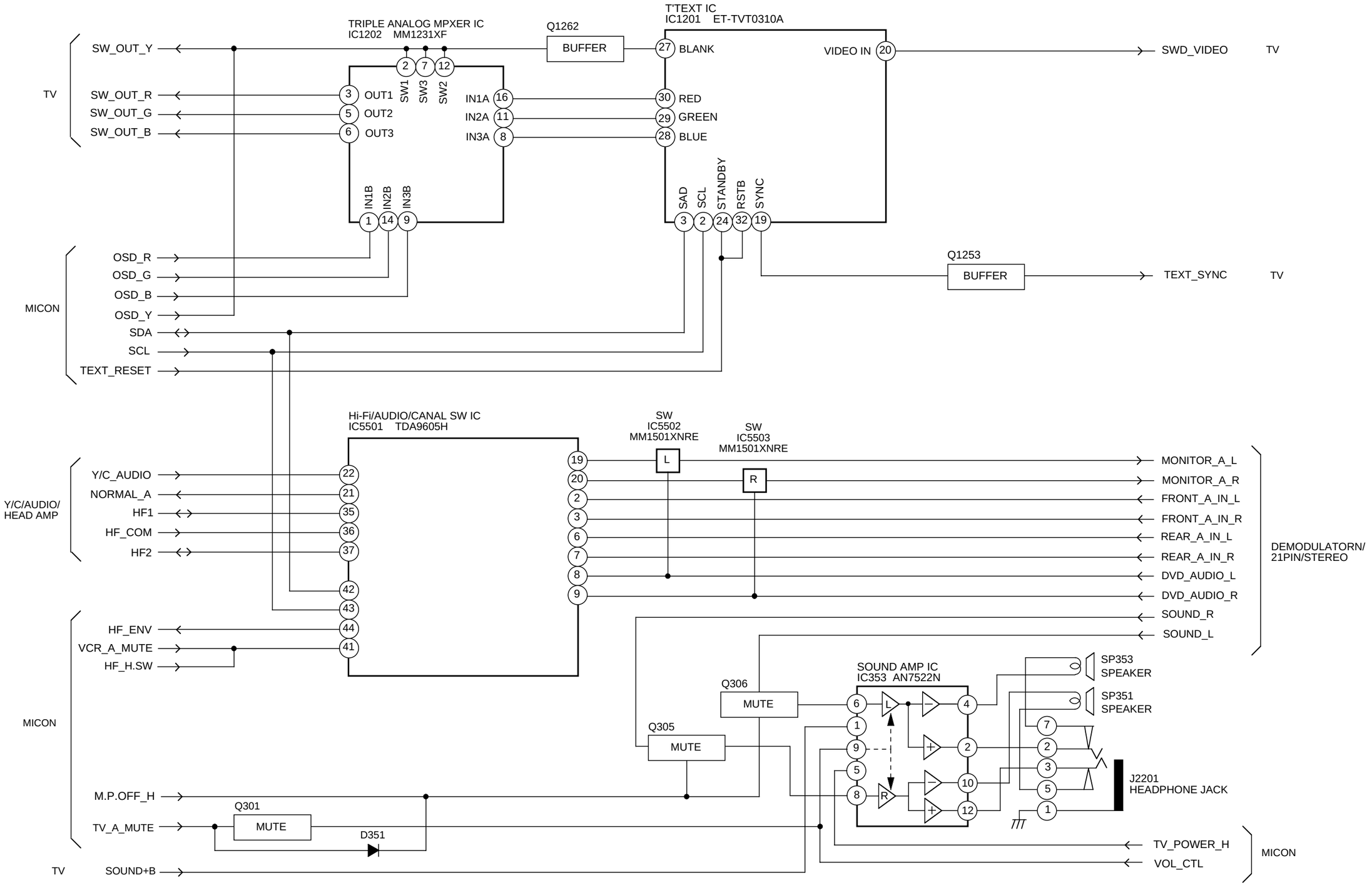
MICON BLOCK DIAGRAM



DEMODULATOR/21PIN/STEREO BLOCK DIAGRAM

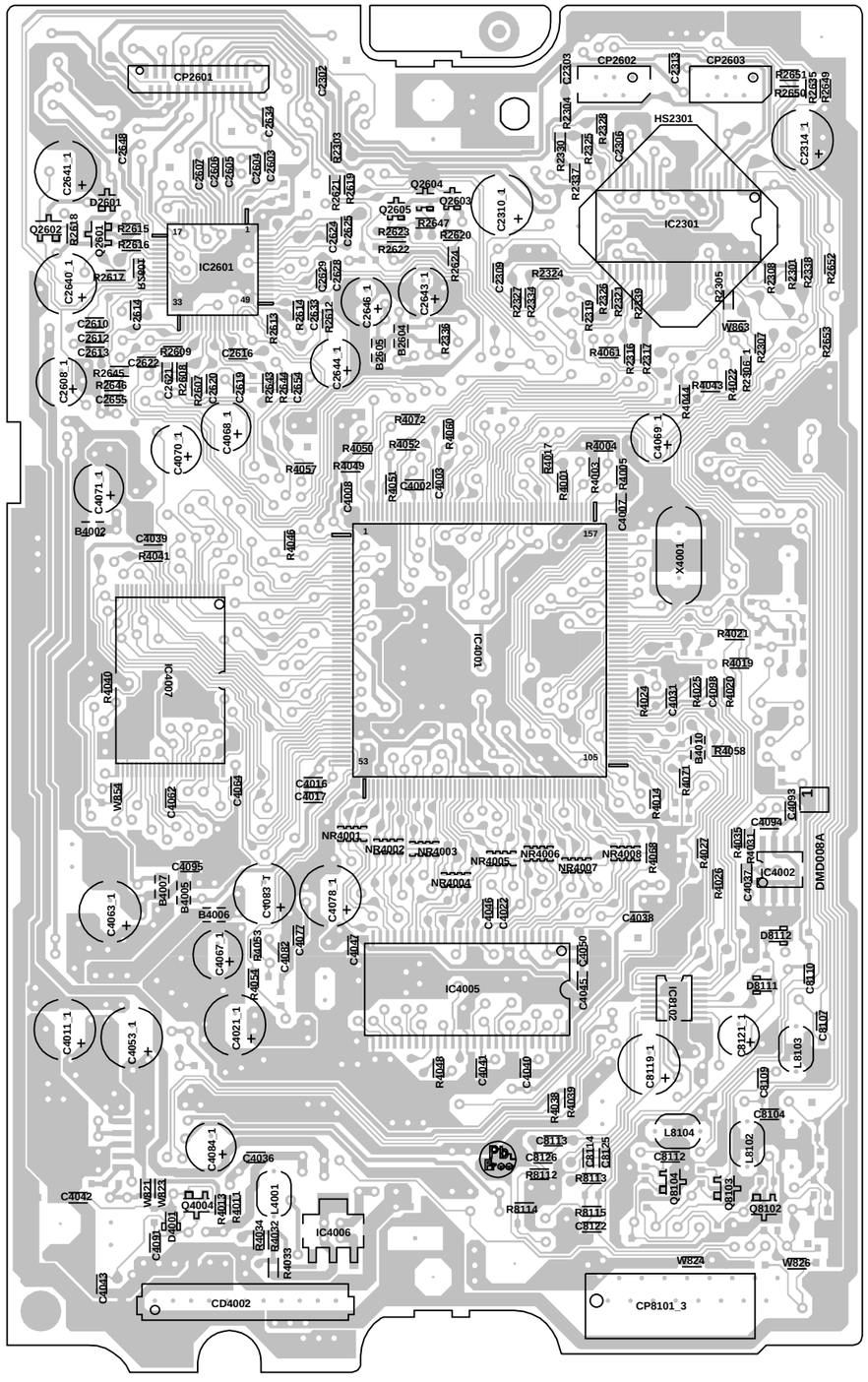


T'TEXT/Hi-Fi/SOUND AMP BLOCK DIAGRAM

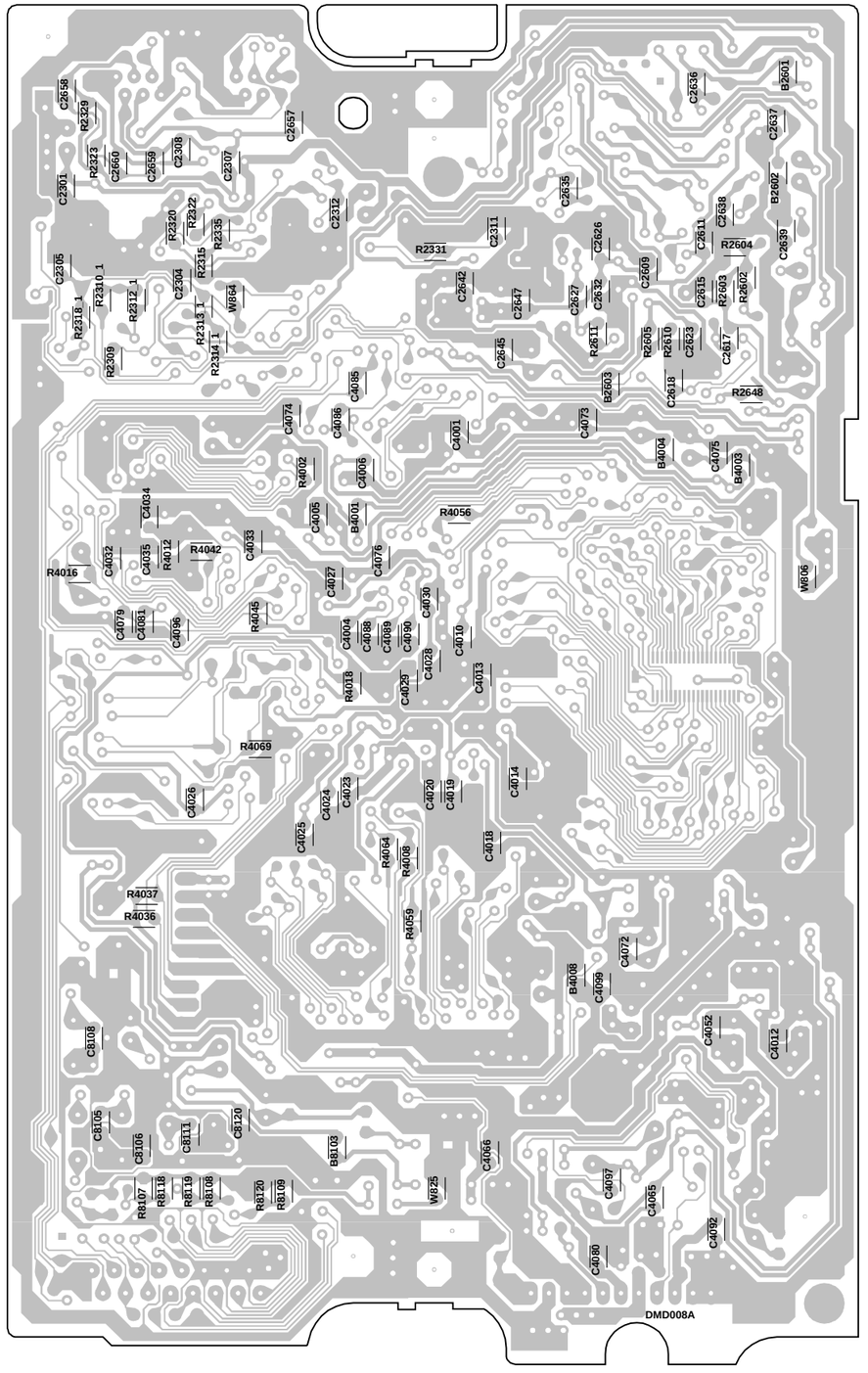


PRINTED CIRCUIT BOARDS

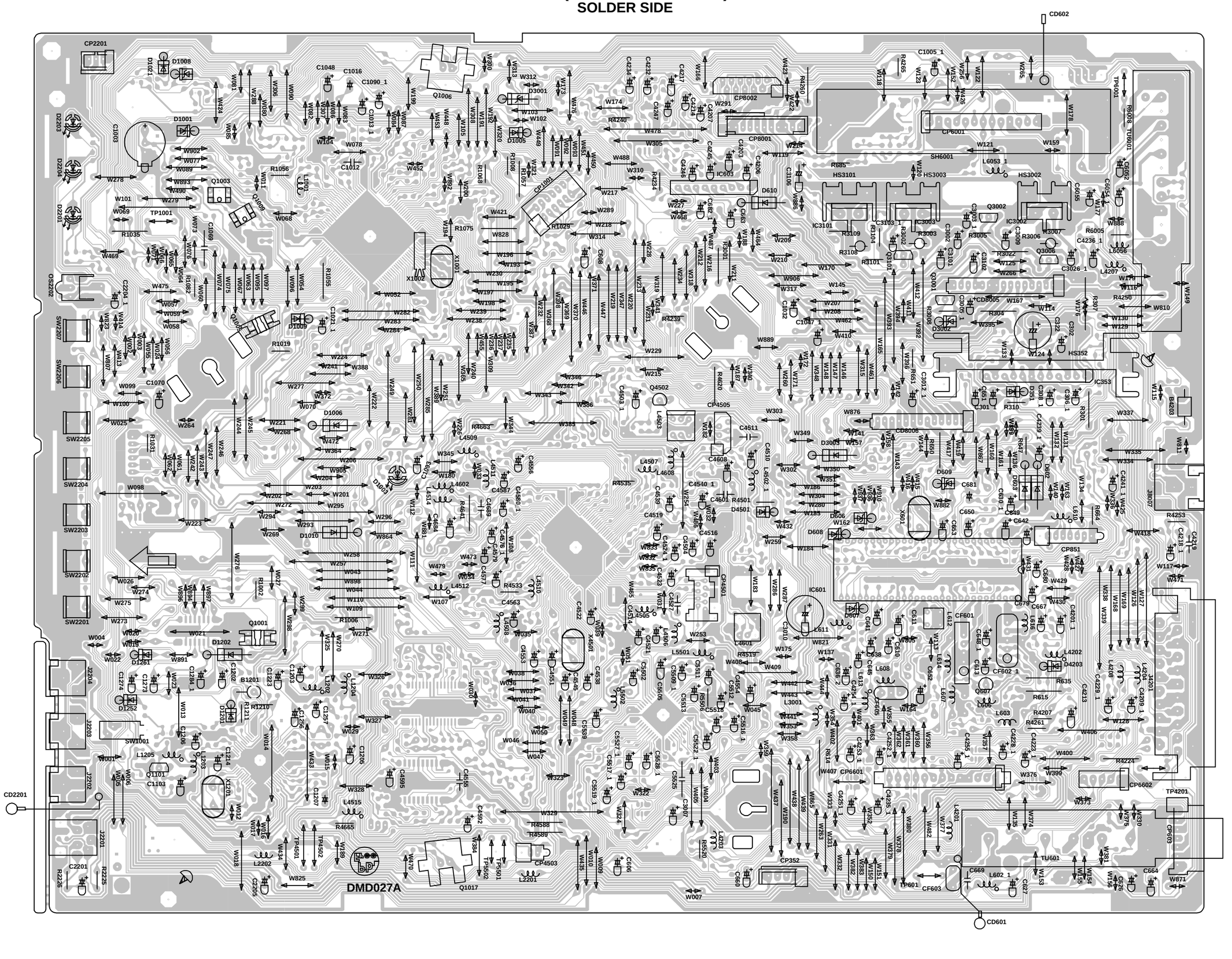
DVD (TOP SIDE)



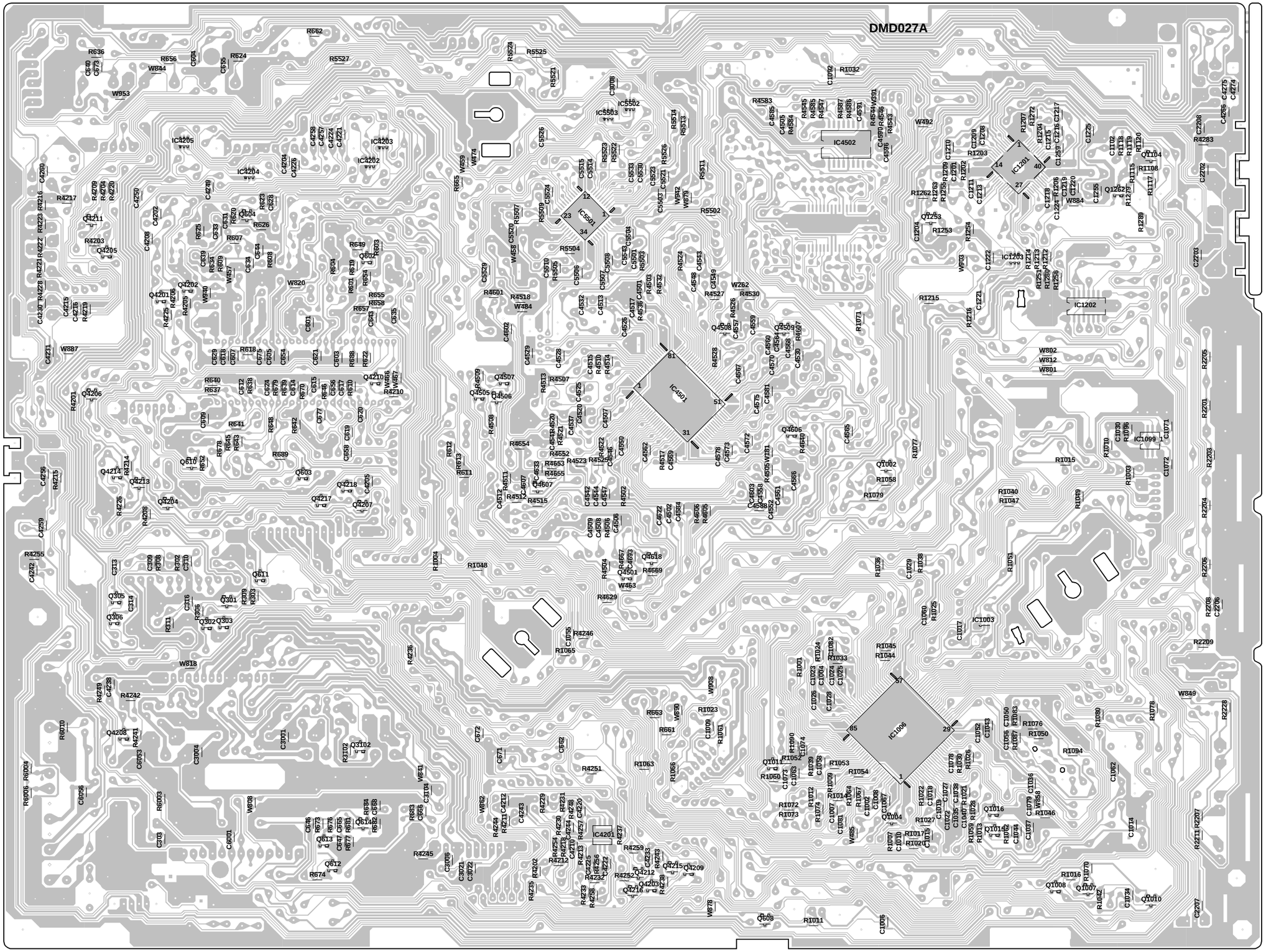
DVD (BOTTOM SIDE)



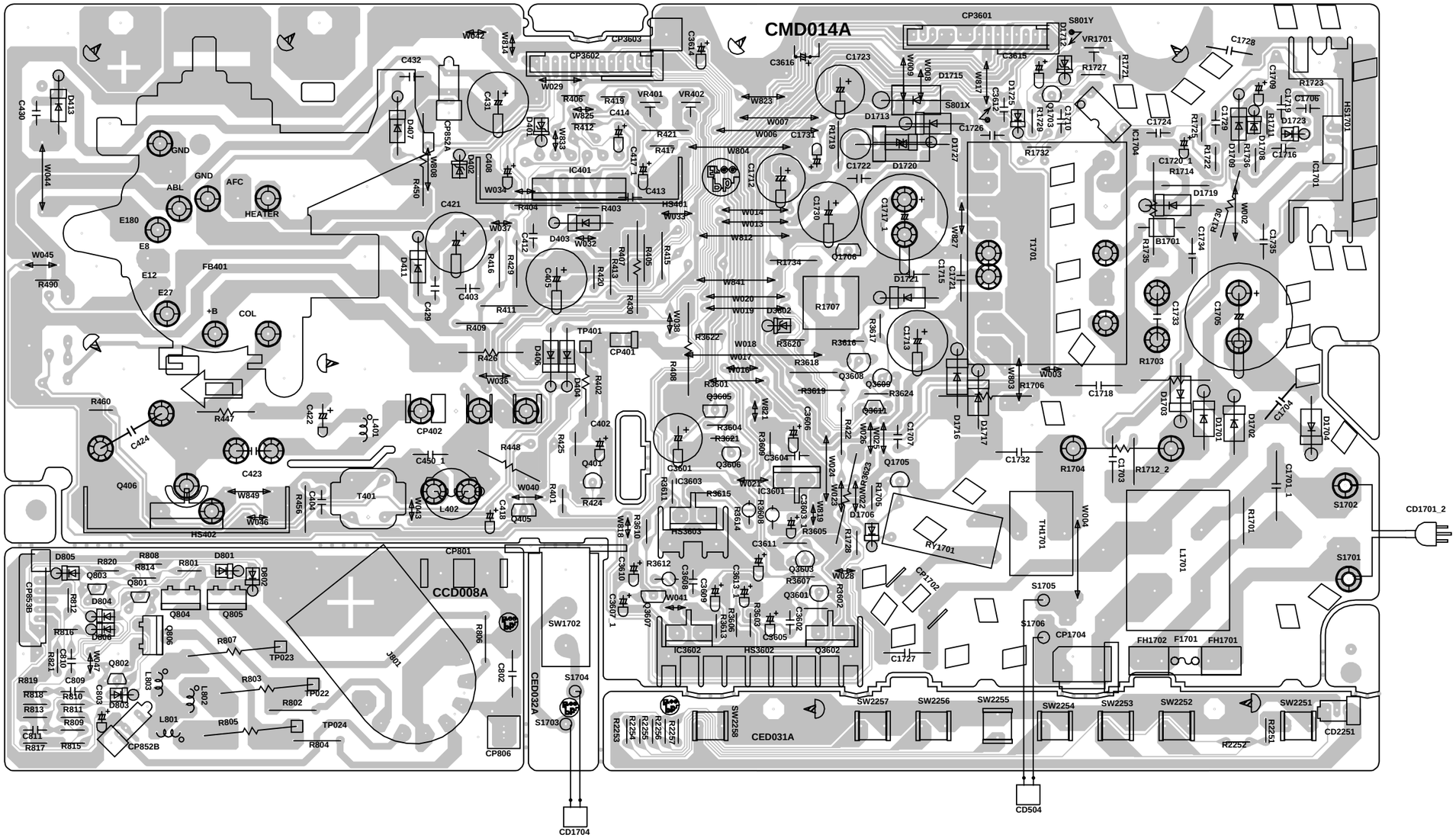
PRINTED CIRCUIT BOARDS
VCR (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
VCR (CHIP MOUNTED PARTS)
SOLDER SIDE

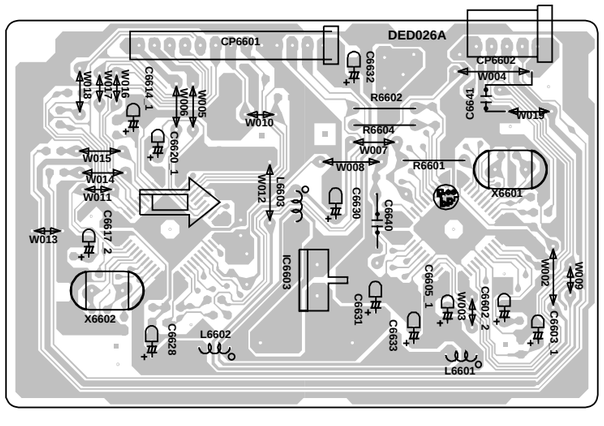


PRINTED CIRCUIT BOARDS
MAIN/CRT/OPERATION/POWER
SOLDER SIDE

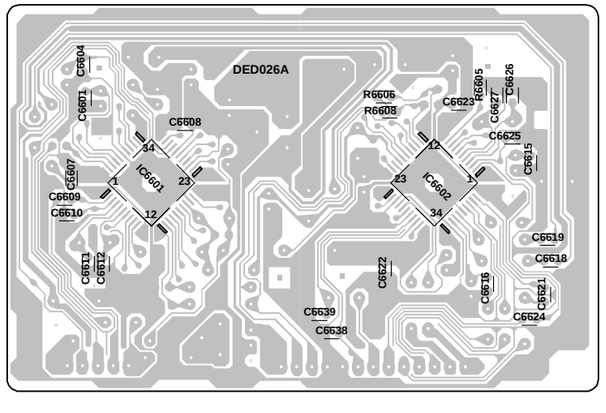


PRINTED CIRCUIT BOARDS

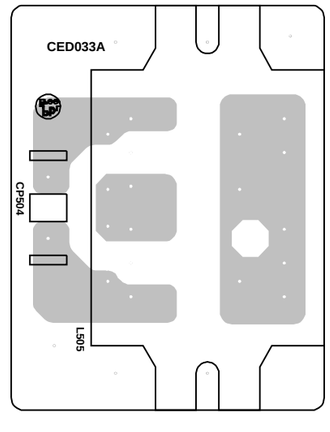
STEREO (INSERTED PARTS)
SOLDER SIDE



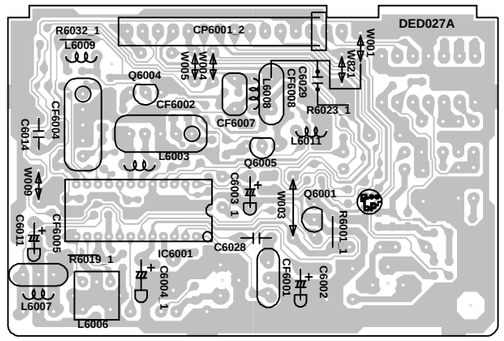
STEREO (CHIP MOUNTED PARTS)
SOLDER SIDE



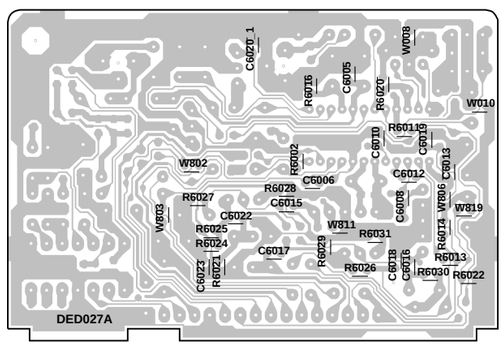
FILTER
SOLDER SIDE



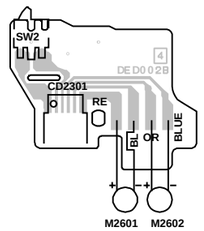
IF (INSERTED PARTS)
SOLDER SIDE



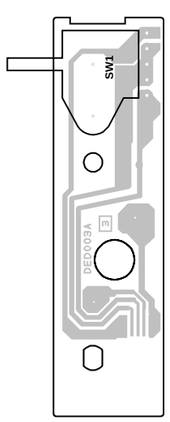
IF (CHIP MOUNTED PARTS)
SOLDER SIDE



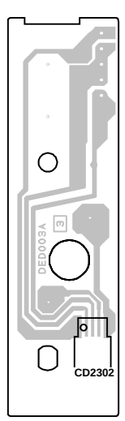
SW
SOLDER SIDE



LOADING MOTOR (INSERTED PARTS)
SOLDER SIDE



LOADING MOTOR (CHIP MOUNTED PARTS)
SOLDER SIDE



MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO RF AMP

FROM/TO REGULATOR

MPEG/MICON/DSP IC
IC4001
ZR36762PQCG_V

REG+1.9V IC
IC4006
SIP1117L-ADJ-TP

EEPROM IC
IC4002
BR24L02F-WE2

DVD COMBO 220mm
CD4002 (CP8001)
C32B3303

W5729X7.5X19

PCB130
DMD008A

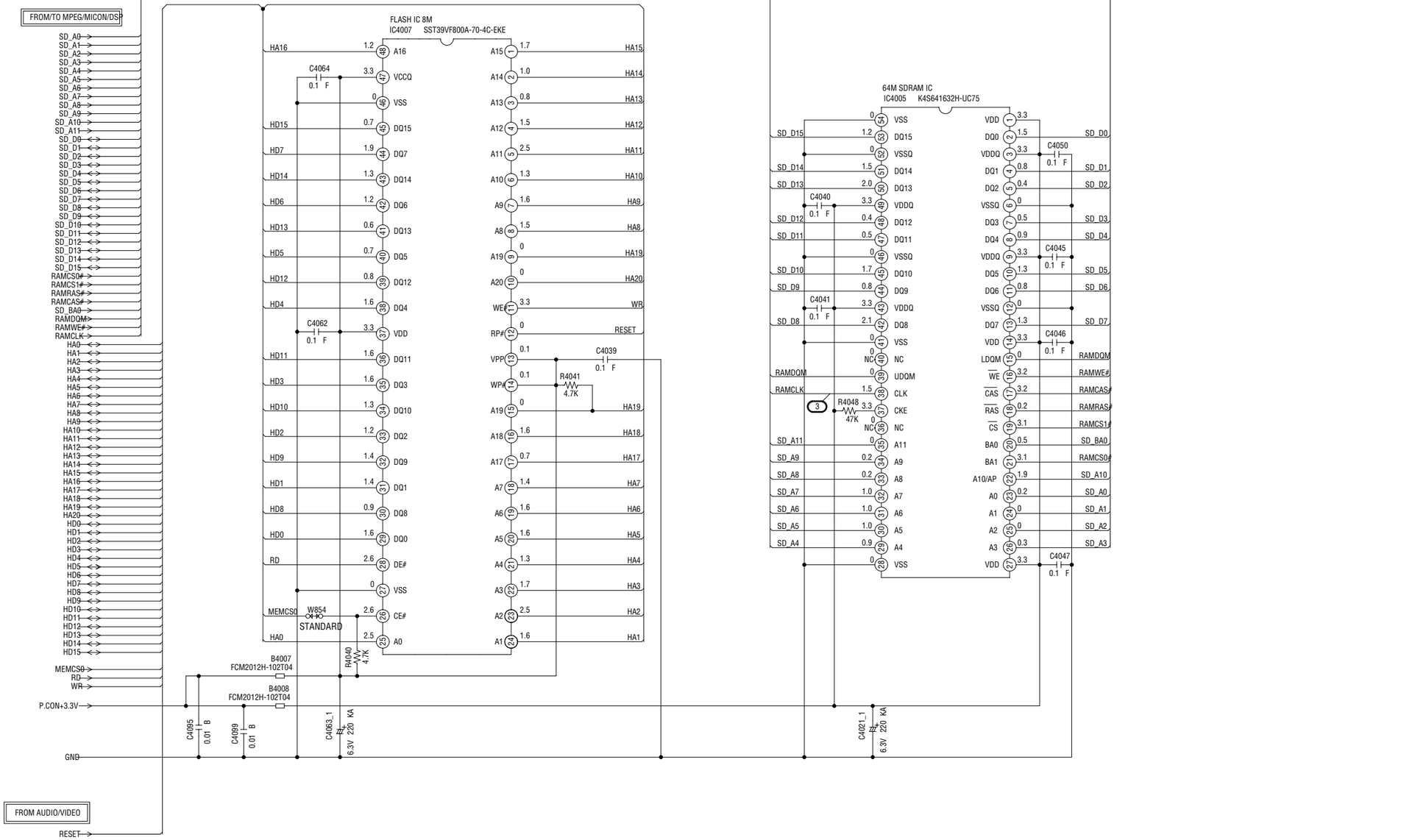
DIGITAL AUDIO SIGNAL(PB)

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

MEMORY SCHEMATIC DIAGRAM

(DVD PCB)



PCB130
DMD008A

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

RF AMP SCHEMATIC DIAGRAM

(DVD PCB)

DM3

FROM/TO LODER

CP2601
09-5000-024-001-001

1	T-	TR-
2	T+	TR+
3	F-	FO-
4	F+	FO+
5	MON(DVD)	DVDPD
6	NC(SW)	NC
7	VOL(DVD)	VR_DVD
8	GND(DVD)	JG056
9	LD(DVD)	DVDLD
10	LD(CD)	CDLD
11	VOL(CD)	VR_CD
12	GND(CD)	GND
13	MON(COM)	CDPD
14	DVD/CD	DVD/CD
15	RF	OPU_RF
16	C	OPU_C
17	B	OPU_B
18	A	OPU_A
19	D	OPU_D
20	F	OPU_F
21	E	OPU_E
22	VCC	
23	Vref	OPU_VREF
24	GND(PDIC)	

C2634 0.1 F
C2648 0.1 F

TO LODER

CP2602
00_6232_005_006_800+

5	LD-	MOT_LD-
4	LD+	MOT_LD+
3	OPEN	TOUT_SW
2	GND(D)	TIN_SW
1	CLOSE	JG054

JG063 JG052
R2653 100
R2652 100
JG053
R2650 4.7K
R2651 4.7K

P.CON+3.3V
R2635 4.7K

FROM/TO LODER

CP2603
00_6232_006_006_800+

6	SW(GND)	
5	LIMIT SW	TP2601
4	SLD-	MOT_SLED-
3	SLD+	MOT_SLED+
2	SP1-	MOT_SPDL-
1	SP1+	MOT_SPDL+

R2649 100 HOME
C2657 100P CH
C2658 100P CH
C2659 100P CH
C2660 100P CH

VR_DVD R2619 100
VR_CD R2621 100
P.CON+5V R2622 4.7K
VR_SEL R2624 4.7K

VR DVD CTL Q2603 2SK3018: R2620 4.7K
VR CD CTL Q2604 2SK3018: R2647 4.7K
VR SEL CTL Q2605 2SK3018: R2623 4.7K

JG061
JG055 OPU_RF
C2635 0.001 B
JG021 TP4 TP6 TP10
JG062
JG023 JG024
C2626 0.1 F
C2627 0.033 B
C2628 0.001 B
C2629 0.001 B
C2632 0.1 F
C2633 0.001 B
C2624 0.001 B
C2625 0.001 B
R2614 12K +-1%

FNP FNN

1.5	0	3.1	3.1	4.3	4.3	5.1	2.4	2.6	3.5	3.5	2.3	0	0	0	0	
64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	
RFDC	RFSIN	ATOP	ATON	AIN	AIP	VPA	RFAC	BYP	DIN	DIP	FNP	FNN	VNA	MEVI	RX	

NC (1) RFDC
NC (2) DVDRFN
(1) DVDRFP

C2603 0.0022 B
C2604 0.0022 B
C2605 0.0022 B
C2606 0.0022 B
C2607 33P CH

2.5	0	2.5	2.5	3.7	3.7	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.7	
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
A2	B2	C2	D2	CP	CN	D	C	B	A	CD_D	CD_C	CD_B	CD_A	CD_F	CD_E	

TP19 TP20 TP21 TP22

48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	
SDEN	SDATA	SCLK	V33	LCP	LCN	MNTR	CE	FE	TE	PI	V25	V125	TPH	DFT	LINK	

(48) SDEN
(16) CD_A
(33) LINK

C2616 470P CH
R2643 1K
R2644 2.2K
C2619 560P CH
C2620 0.0056 B
C2621 0.0056 B
C2622 0.0056 B
C2623 0.1 F
R2607 1.2K
R2608 1.2K
R2609 1.2K
R2605 10K +-1%
R2610 5.1K +-1%
C2617 0.1 B
C2618 0.1 B
C2615 0.1 F
R2645 1K
R2646 2.2K
C2655 0.01 B
C2654 0.01 B

READ CHANNEL IC
IC2601
ZR36708TQC

0	1.5	3.3	3.3	4.2	4.1	0	1.8	1.7	1.8	1.6	3.3	1.7	0	3.3	0	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
2.6	2.6	5.1	5.1	3.7	5.1	0.2	0.2	0	3.3	0	2.7	2.2	2.3	2.9	0.2	
CD_F	CD_E	VPB	VC	DVDLD	CDLD	DVDPD	CDPD	VNB	LDON	MIRR	MP	MB	MLPF	MIN	MEVO	

R2601 4.7K
C2610 0.0068 B
C2612 0.033 B
C2613 220P CH
C2614 0.1 B
R2602 1.8M
R2603 13K +-1%
R2604 27K +-1%
R2648 13K

TP27 TP28 TP34 TP29 TP30 TP31 TP25 TP37 TP36

C2608_1 47 KA 6.3V
C2609 0.1 F
C2611 0.1 F

OPU_F OPU_E OPU_VREF DVDPD CDPD LDON MIRR

JG019 JG022
DVD LD CTL Q2601 2SA1036K
R2615 10
R2616 1K
TP40
B2601 FCM2012H-102T04
D2601 KDS120RTK
C2636 0.1 F
C2638 0.1 F
C2637 0.1 F
C2639 0.1 F
C2640_1 6.3V 100 KA
B2602 FCM2012H-102T04
C2641_1 6.3V 100 KA
CD LD CTL Q2602 2SA2048
R2617 1K
R2618 10
TP42
JG020

DVDLD CDLD GND

TP15 RFA_SDEN
TP16 RFA_DATA
TP17 RFA_SCLK
TP18
TP26 VBIASS0
TP38 VBIASS1
TP35 DEFECT
TP33 LINK

AAF_CE AAF_FE AAF_TE AAF_PI

MOT_SPDL+ MOT_SPDL-

RF_GND GND W806
RF_A5V
C2646_1 6.3V 47 KA
C2647 0.1 F
C2642 0.1 F
C2643_1 6.3V 47 KA
C2644_1 6.3V 47 KA
C2645 0.1 F
B2605 FCM2012H-102T04
B2604 FCM2012H-102T04
B2603 FCM2012H-102T04
R2336 4.7K

FROM/TO MPEG/MICON/DSP

TOUT_SW
TIN_SW
RFA_SDEN
RFA_DATA
RFA_SCLK
AAF_CE
AAF_FE
AAF_TE
AAF_PI
VR_SEL
FNN
FNP
VBIASS0
VBIASS1
DEFECT
LINK
MIRR
LDON
HOME
GND
GND
TP5 DVD/CD
P.CON+5V
P.CON+A5V
P.CON+3.3V

SMUTE
TRACK_DAC
FOCUS_DAC
SPINDLE_PWM
SLED_PWM
ADCIN_7
ADCIN_5
ADCIN_6
VCC+9V
M_GND
SPDL_SENS
TP1 TRAY_CLOSE
TP2 TRAY_OPEN

R2310_1 5.6K +-1%
R2312_1 5.6K +-1%
R2314_1 5.6K +-1%
R2313_1 5.6K +-1%
C2304 220P CH
R2306_1 5.6K +-1%
R2318_1 5.6K +-1%
R2320 4.7K
R2322 4.7K
R2335 1.5K
C2305 220P CH
C2309 0.001 B
C2312 0.001 B
TP45
R2308 10K
R2301 1K
W863
R2307 27K
R2309 470 +-1%
R2315 10K
R2316 1.5K
W864
R2319 27K
R2334 10K
R2324 1K
R2317 22K
TP46
TP138
R2305 27K
HS76 HS2301 763WSAA023
R2321 1M
R2326 3.9K
R2327 4.7K
R2339
TP139 27K
TP140
R2338 12K

MOTOR DRIVE IC
IC2201
LA6565

0	4.0	2.6	2.6	1.5	1.5	1.5	1.5	NC	0	NC	1.0	2.5	4.2	0	1.5	1.5	1.7	1.5	1.5
36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19		
S-GND	VCONT	MUTE1	MUTE234	VIN4-	VIN4	VREF-IN	VREF-OUT	REG-OUT	REG-IN	VIN-OP	VIN-OP	VO_OP	VIN3	VIN3-	VIN2	VIN2-	VIN2+		

0	0	8.8	0.8	0.9	4.1	4.1	4.1	4.1	0	5.1	3.0	4.0	4.1	8.8	8.8	1.5	1.5	1.5
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
FWD	REV	VCC2	VLD-	VLD+	VD4-	VD4+	VD3+	VD3-	VD2+	VD2-	VD1-	VD1+	VCC1	VCCS	VIN1+A	VIN1-A	VIN 1	

TP64 TP65 TP69 TP68 TP56 TP55 TP66

C2313 0.1 B
C2301 0.1 F
C2306_1 0.1 F
C2314_1 10V 100 KA
C2310_1 10V 100 KA
R2328 4.7K
C2311 0.1 B
R2331 470 +-1%
R2330 1K
TP141
TP24
R2325 3.3K

C2302 0.1 B
R2303 2.2
C2303 0.1 B
R2304 2.2
C2307 0.1 B
C2308 0.1 B
R2323 1.2
R2329 1.2
JG057
JG058

MOT_LD- MOT_LD+ TR+ TR- FO+ FO- MOT_SPDL+ MOT_SPDL- MOT_SLED- MOT_SLED+

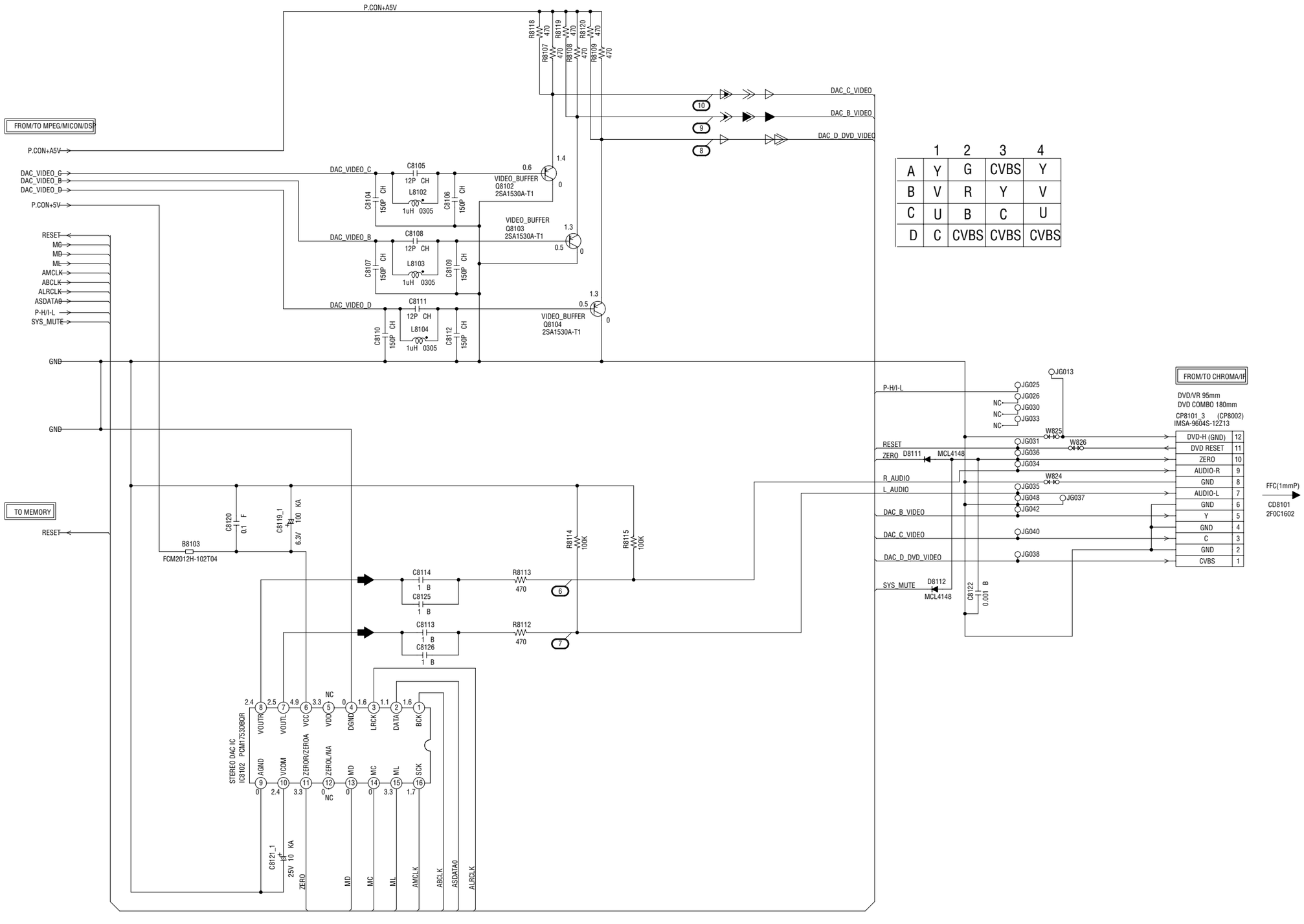
PCB130
DMD008A

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)



	1	2	3	4
A	Y	G	CVBS	Y
B	V	R	Y	V
C	U	B	C	U
D	C	CVBS	CVBS	CVBS

◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀◁ G.SIGNAL
≪ B.SIGNAL

◀◁ COMPONENT SIGNAL(U)
≪ COMPONENT SIGNAL(V)
◀ AUDIO SIGNAL(PB)

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(VCR PCB)

FROM REGULATOR

VD
GND
P.CON+9V
P.CON+5V_A

FROM/TO CYL

CP4501
TOC-C09X-A1

9	HF1 (R)	HF1
8	HF COM	HF_COM
7	HF2 (L)	HF2
6	SP-CH1 (R)	
5	SP COM	
4	SP-CH2 (L)	
3	EP/LP-CH1 (R)	
2	EP/LP COM	
1	EP/LP-CH2 (L)	

TO FULL ERASE HEAD

CP4503 B2013H02-2P

2	FE HEAD(GND)	GND
1	FE HEAD(HOT)	HOT

FROM/TO HEAD AUDIO CONTROL

CD4005 2F061502

CP4505
IMSA-9604S-06Z14

1	AE HEAD(-)	
2	AE HEAD(+)	
3	CTL-	CTL-
4	CTL+	CTL+
5	AUDIO_PB	
6	AUDIO_REC	

20

PDC/VPD DECODER IC
IC4502 SDA5650/X

VSSA, VSSD, NC, SCL, SDA, CSO, VCS, NC, DAYN, EHB
VDDA, VDDD, NC, CVBS, IREF, VCO, PD2, NC, PD1, TI

SDA
SCL

NORMAL AUDIO REC ST SW Q4501 2SC3052-T1

V.REC ST SW Q4505 DTA124EKA

PB SW Q4506 2SC3052-T1

PB SW Q4507 2SC3052-T1

COIL BIAS OSC L4503 1626008

OSC Q4502 KTC3203_Y

BUFFER Q4618 2SC3052-T1

AMP Q4607 2SC3052-T1

BUFFER Q4508 2SC3052-T1

BUFFER Q4509 2SC3052-T1

BUFFER Q4606 2SA1530A-T1

Y/C/AUDIO/CCD /HEAD AMP IC
IC4501 HA118225F

X4501 10DDT4R410 4.433619MHz

H.SW TP4501 NC

V.ENV TP4502 NC

21

22

23

W898 MESECAM_H
ENV_DET
H.SW
VCR_A_MUTE
SDA
SCL
P.CON+5V_A
2FSC_A

FROM/TO SECAM CHROMA/Hi-Fi
HF1
HF2
HF_COM
NORMAL_A
Y/C_AUDIO

FROM/TO CHROMA/IF
Y/C_VIDEO
DVD_VIDEO

FROM DEMODULATOR/21PIN
REC_TU_V
REAR_V_IN

FROM DVD IN/OUT
FRONT_V_IN

FROM/TO MICON
VCR_A_MUTE
H.SW
C.SYNC
SCL
SDA
D_V_SYNC
V.REC_ST_H
ENV_DET
CTL+
CTL-
2FSC_A
AT+5.6V_A
MESECAM_H

EE/VV
D_V_SYNC
P.CON+5V_A
P.CON+9V
C.SYNC
Y/C_VIDEO

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: DIGITAL TRANSISTOR

AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL

PCB010
DMD027

MICON SCHEMATIC DIAGRAM

(VCR PCB)

FROM/TO REGULATOR

AT+5.6V
POWER_FAIL[DC]
VCR_POWER_H
AT+12V
RX
TX
DEGAUSS_H
DVD_POWER_H
EMERGENCY
VD
HD
TV_POWER_H
P.CON+5V_G
MOTOR_GND
GND
P.CON+5V_A

FROM/TO DVD IN/OUT

TUNER_H
T-REC_LED
REC_LED
REMOCON_IN
KEY_A
KEY_B
STANDBY_H
TU_AUDIO_MUTE_H

FROM/TO Y/C/AUDIO/HEAD AMP

AT+5.6V_A
MESECAM_H
D_V_SYNC
V.REC_ST_H
2FSC_A
SCL
SDA
H.SW
ENV_DET
VCR_A_MUTE
CTL+
CTL-
C.SYNC

FROM/TO CAPSTAN DD UNIT

CP1001
TMC-J12P-B2

1	CAP FG
2	CAP VCO
3	VCC
4	CAP.M/F/R
5	I LIMIT
6	MOTOR GND
7	GND
8	CYL/LAD VCO
9	CAP CTL
10	LDM CTL
11	CYL FG/PG
12	CYL CTL

SYSCON/TIMER/SERVO IC
IC1006
OEC0136C

FROM/TO DEMODULATOR/21PIN

REC_AGC_CTL
REC_SVL-H
IF_MOD
NICAM_RESET
SCL
SDA
REC_AFT
EXT_IN_L
TU_AUDIO_MUTE_H
TUNER_ON/OFF
21PIN/DVD

FROM/TO SECAM CHROMA/Hi-Fi

SDA
SCL
VCR_A_MUTE
HF_ENV
HF_H.SW
VCR/DVD

FROM/TO CHROMA/IF

MO_SYNC
DVD_RESET
H_CTL
PROTECT
SDA
SCL
IIC_OFF
AGC_M
AV1
AV2
TUNER_CTL
VCR/DVD

FROM/TO T'TEXT/RGB SW

TEXT_RESET
VCR/DVD
OSD_R
OSD_G
OSD_B
OSD_Y
SCL
SDA

TO SOUND AMP

VOL_CTL
M.P.OFF_H
TV_A_MUTE
TV_POWER_H
POWER_FAIL

EEP ROM IC
IC1099_1
BR24L08F-WE2

PCB010
DMD027

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

DVD IN/OUT SCHEMATIC DIAGRAM

(VCR PCB)

FROM/TO DEMODULATOR/21PIN
MONITOR_A-R
TUNER_H
MONITOR_A-L
DVD_AUDIO_L
DVD_AUDIO_R
SOUND_A-L
SOUND_A-R
AUDIO SW(L CH) IC IC4202 MM1501XNRE
AUDIO SW(R CH) IC IC4203 MM1501XNRE
C4235_1 25V 10 KA
C4251_1 25V 10 KA
C4224 1 B
C4221 1 B
TO Y/C/AUDIO/HEAD AMP
AT+11.5V
FRONT_V_IN
FROM/TO SECAM CHROMA/Hi-Fi
DVD_AUDIO_L
DVD_AUDIO_R
FRONT_A_IN_R
FRONT_A_IN_L
MONITOR_A-L
MONITOR_A-R
C4250 0.0047 B
C4249 0.0047 B
L4207 100uH
C4252_1 25V 10 KA
C4253_1 25V 10 KA
R4246 10K
MUTE SW Q4213 DTA114EKA
MUTE SW Q4204 2SC3052-T1
MUTE Q4206 2SC3052-T1
MUTE Q4214 2SC3052-T1
FROM/TO CHROMA/IF
FRONT_V_IN
DVD_A_OUT_L
DVD_A_OUT_R
ZERO
R4241 1.5K
R4245 2.2K
D AUDIO DRIVER Q4208 2SC3052-T1
R4250 68 1/4W
C4242 0.1 B
B4203 W5RH3.5X5X1.0
C4238 0.022 B
C4236_1 10V 100 YK
R4242 3.3K
R4249 220
R4255 100K
C4239_1 25V 10 KA
FROM REGULATOR
P.CON+5V_C
SPDIF-134
AT+5.6V
P.CON+12V
SOUND_GND
GND
AT+11.5V
R4265 100 1/4W
R4260 4.7K 1/4W
MUTE Q4203 DTC144EKA
C4203 16V 100 KA
C4233 220P CH
R4243 10K
W907 (W335)
SOUND_R
SOUND_L
FROM/TO MICON
TU_AUDIO_MUTE_H
REC_LED
T-REC_LED
KEY_A
KEY_B
STANDBY_H
REMOCON_IN
TUNER_H
C4220 0.0015 B
R4229 12K
C4217 16V 100 KA
C4245 50V 2.2 KA
C4244 100P CH
R4248 10K
R4257 10K
R4230 1K
R4231 8.2K
C4243 0.1 B
C4246 16V 22 KA
R4234 470 1/4W
DVD_AUDIO_L
DVD_AUDIO_R
33
FROM/TO SOUND AMP
SOUND_L
SOUND_R
SOUND_L+
SOUND_R+
SP_OUT_L
SP_OUT_R
DVD_A_OUT_L
DVD_A_OUT_R
R4244 10K
C4206 50V 2.2 KA
R4211 100K
C4212 820P CH
R4218 1K
A_GND
AMP IC NJM4580M(TE1)
VCC
IC4201
MUTE SW. Q4215 DTA143EKA
R4251 100
R4238 3.3K
MUTE SW. Q4209 DTC124EKA
MUTE SW Q4212 2SC3052-T1
R4259 1K
34
R4202 10K
C4207 50V 2.2 KA
R4212 100K
R4213 10K
C4222 0.0015 B
R4258 12K
R4256 10K
R4232 8.2K
R4233 1K
C4247 50V 2.2 KA
C4210 820P CH
R4254 1K
C4214 10V 33 KA
C4225 100P CH
R4236 10K
R4252 100
R4237 10K
C4232 16V 22 KA
R4235 470
R4240 1K 1/4W
MUTE SW Q4216 2SC3052-T1
C4234 50V 4.7 KA
R4215 1K
C4241_1 25V 10 KA
C4218_1 25V 10 KA
R4253 1K 1/4W
AUDIO OUT J8007 MSP-213V1-732_NI_LF
C4219 0.0022 B
C4256 0.0022 B
W811
C4259 220P CH
SOUND_GND
REMOCON_IN
AT+5.6V
GND
KEY_B
KEY_A
FRONT_A_IN_R
FRONT_A_IN_L
FRONT_V_IN
W807
W825
OS2202 RPM7138-WH10
Vout
GND
B+
W823
C2204_1 10V 100 YK
R2208 1.5K
R2206 1.8K
R2204 2.7K
R2203 3.9K
R2201 6.8K
R2205 12K
C2206 0.01 B
R2209 18K
CH.UP SW2207 EVQ21505R
CH.DOWN SW2206 EVQ21505R
REC/OTR SW2205 EVQ21505R
FF SW2204 EVQ21505R
PLAY SW2203 EVQ21505R
STOP/EJECT SW2202 EVQ21505R
REW SW2201 EVQ21505R
L2201 10uH
L2202 10uH
C2208 100P CH
FRONT VIDEO JACK J2202 MTJ-032-05A-30-FE
C2202 0.0022 B
FRONT AUDIO JACK J2203 MTJ-032-05A-32-FE
FRONT AUDIO JACK J2204 MTJ-032-05A-31-FE
YELLOW
WHITE
RED
CD2201 CH01429A
SP_OUT_R
SOUND_R+
SOUND_L+
SP_OUT_L
C2205 16V 47 YK
C2201 16V 47 YK
R4283 75
C2203 0.0022 B
C4274 0.1 B
C4275 0.1 B
C4286 0.1 B
R2225 100 1/4W
R2226 100 1/4W
HEADPHONE_JACK J2201 MSJ-2000_AG
R2211 270
R2207 270
R2228 270
T-REC D2203 SLR-342VCT32
REC/OTR D2204 SLR-342VCT32
POWER/STAND-BY D2201 SLR-342VCT32
AT+5.6V
T-REC_LED
REC_LED
STANDBY_H
W849
KEY_B
KEY_A
C2207 0.01 B
FROM CRT/SVM
CP2201 (CD2251) A2001WV2-3P
KEY-B 1
GND 2
KEY-A 3
PCB010 DMD027

CAUTION: DIGITAL TRANSISTOR

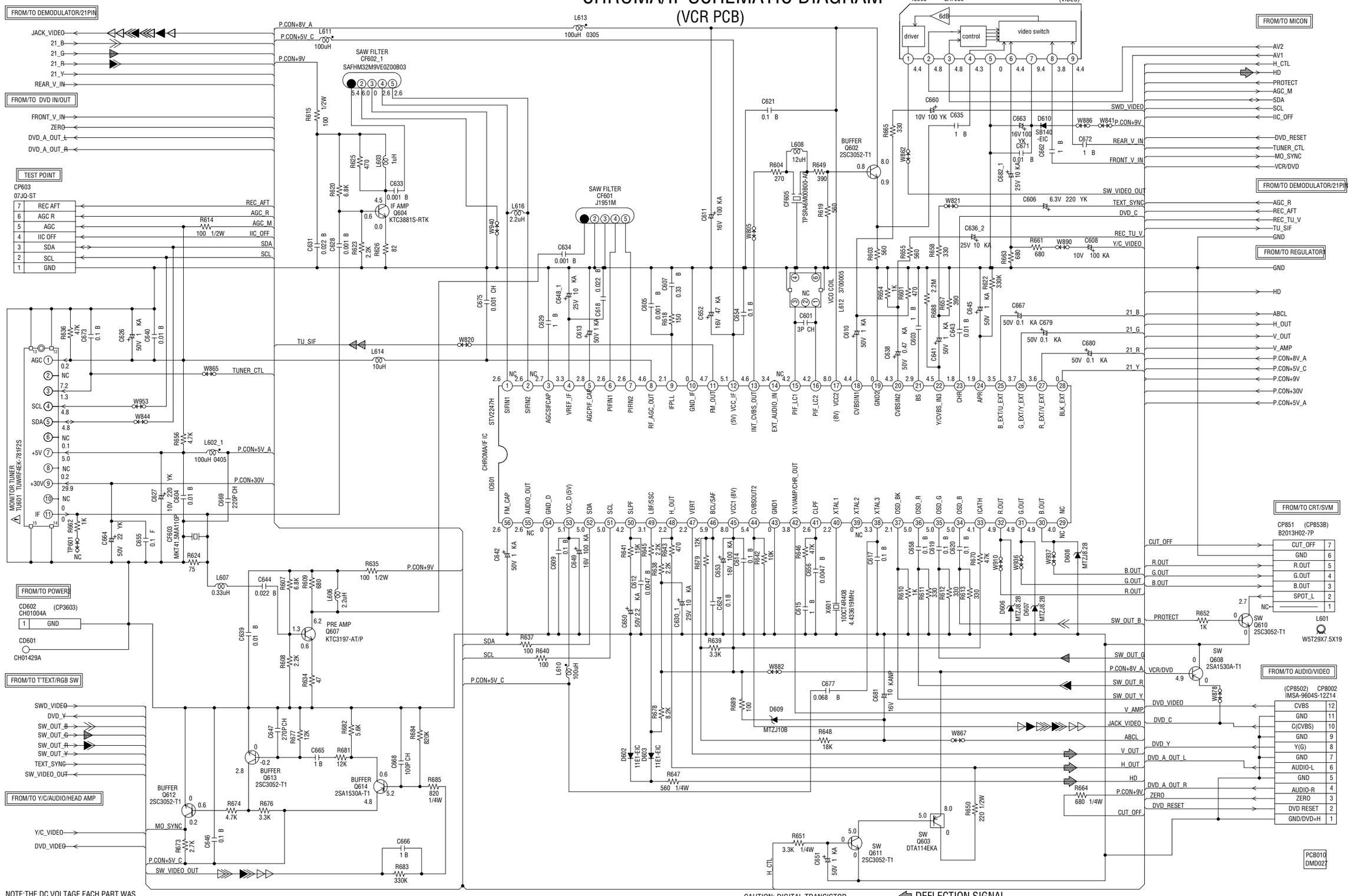
CAUTION: DIGITAL TRANSISTOR

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

AUDIO SIGNAL
AUDIO SIGNAL(PB)
TUNER AUDIO SIGNAL
DIGITAL AUDIO SIGNAL(PB)
TUNER VIDEO SIGNAL
PLAYBACK VIDEO SIGNAL

CHROMA/IF SCHEMATIC DIAGRAM
(VCR PCB)



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CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

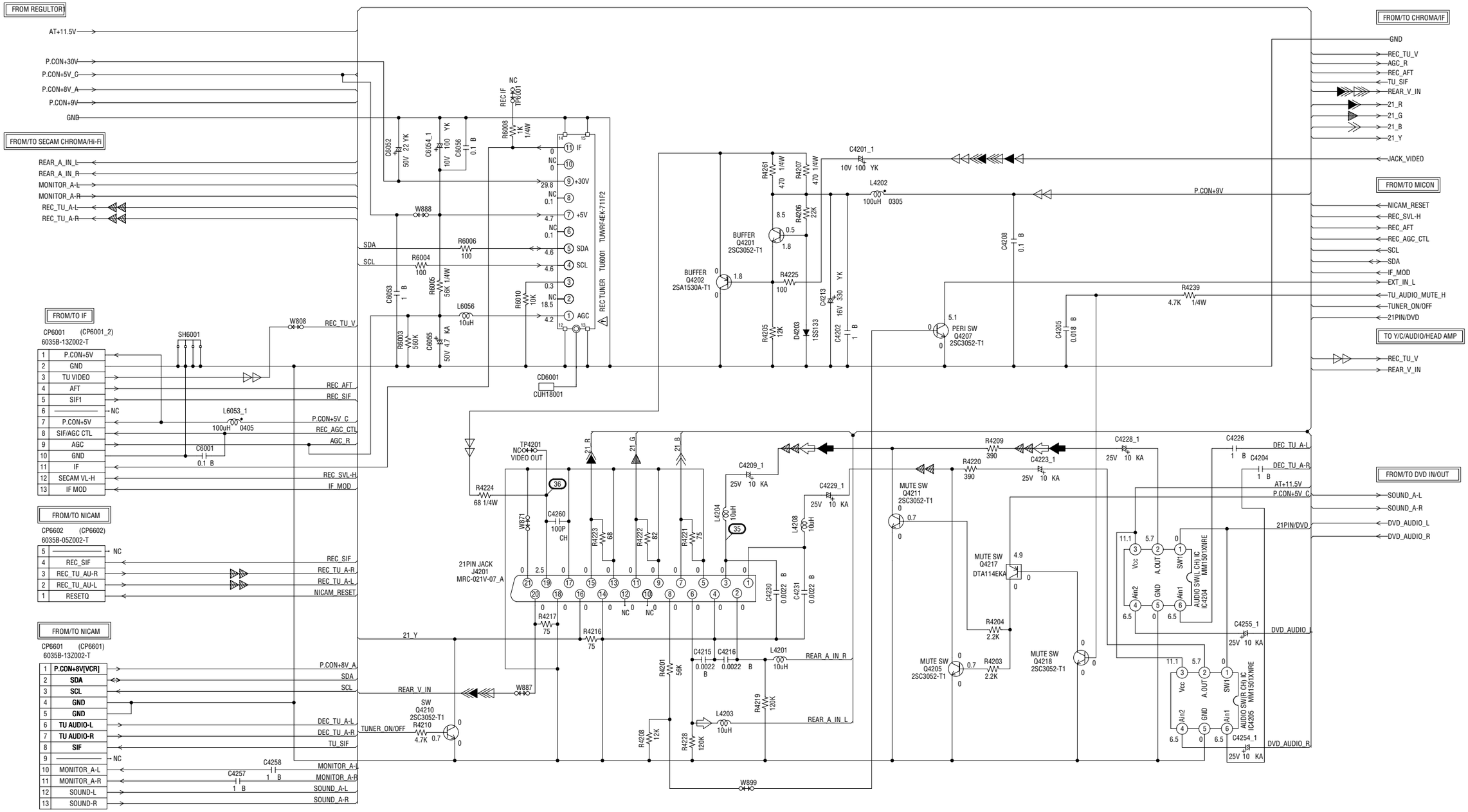
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

DEFLECTION SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
TUNER AUDIO SIGNAL
TUNER VIDEO SIGNAL
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL

DEMODULATOR/21PIN SCHEMATIC DIAGRAM

(VCR PCB)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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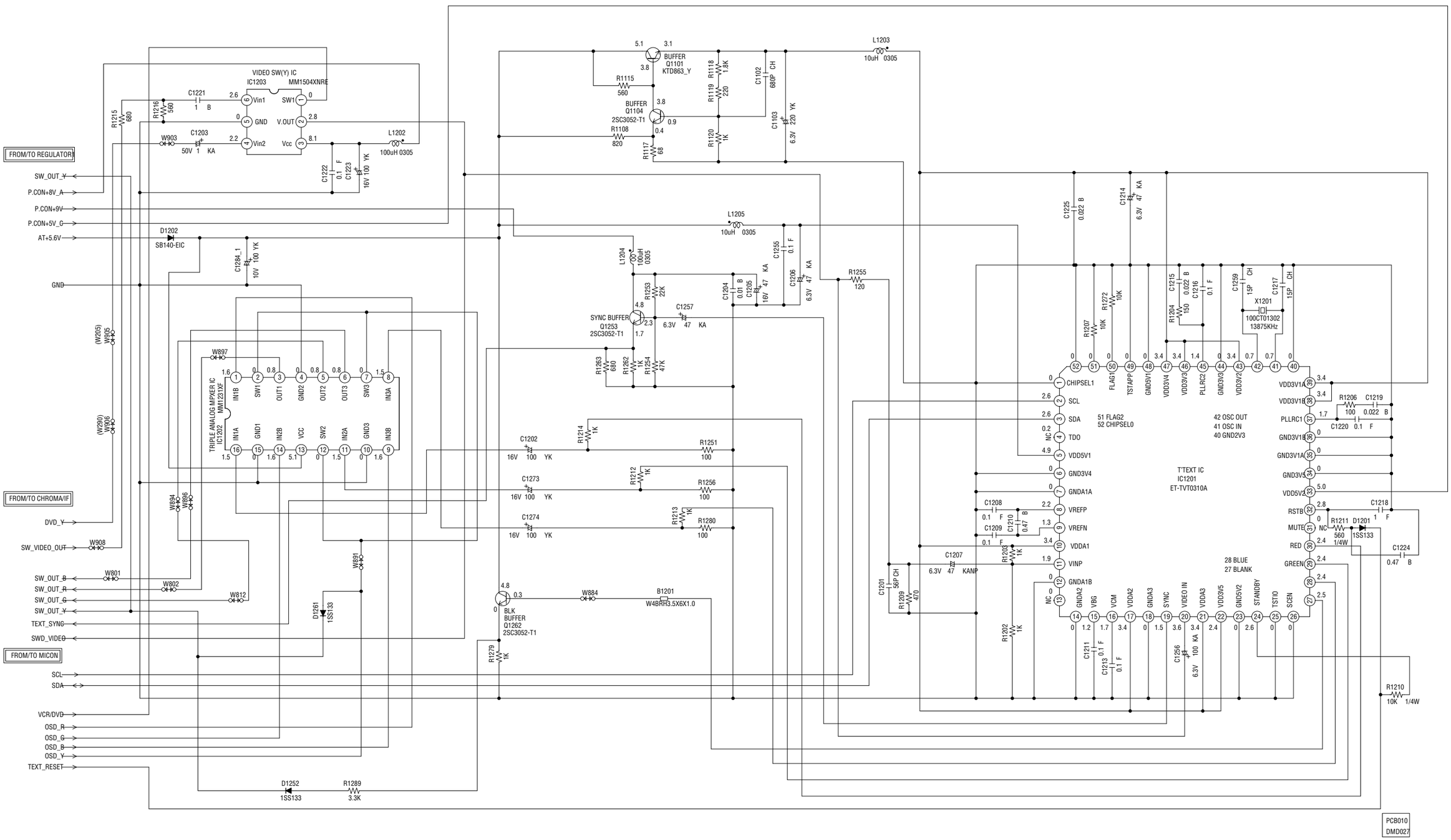
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

TUNER VIDEO SIGNAL
TUNER AUDIO SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
RECORD LUMINANCE SIGNAL
PLAYBACK LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK COLOR SIGNAL

T'TEXT/RGB SW SCHEMATIC DIAGRAM

(VCR PCB)

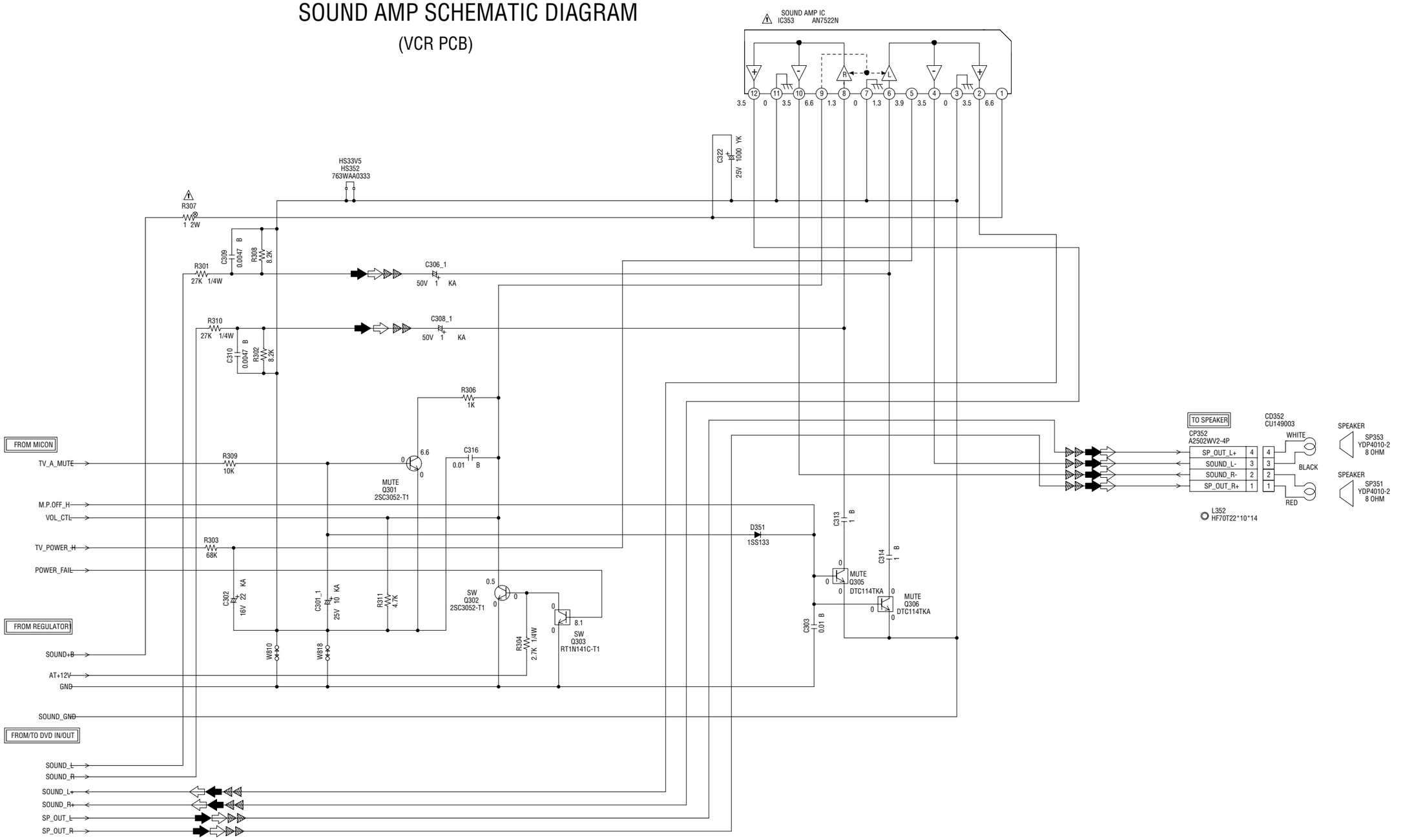


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

SOUND AMP SCHEMATIC DIAGRAM

(VCR PCB)



PCB010
DMD027

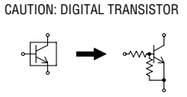
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

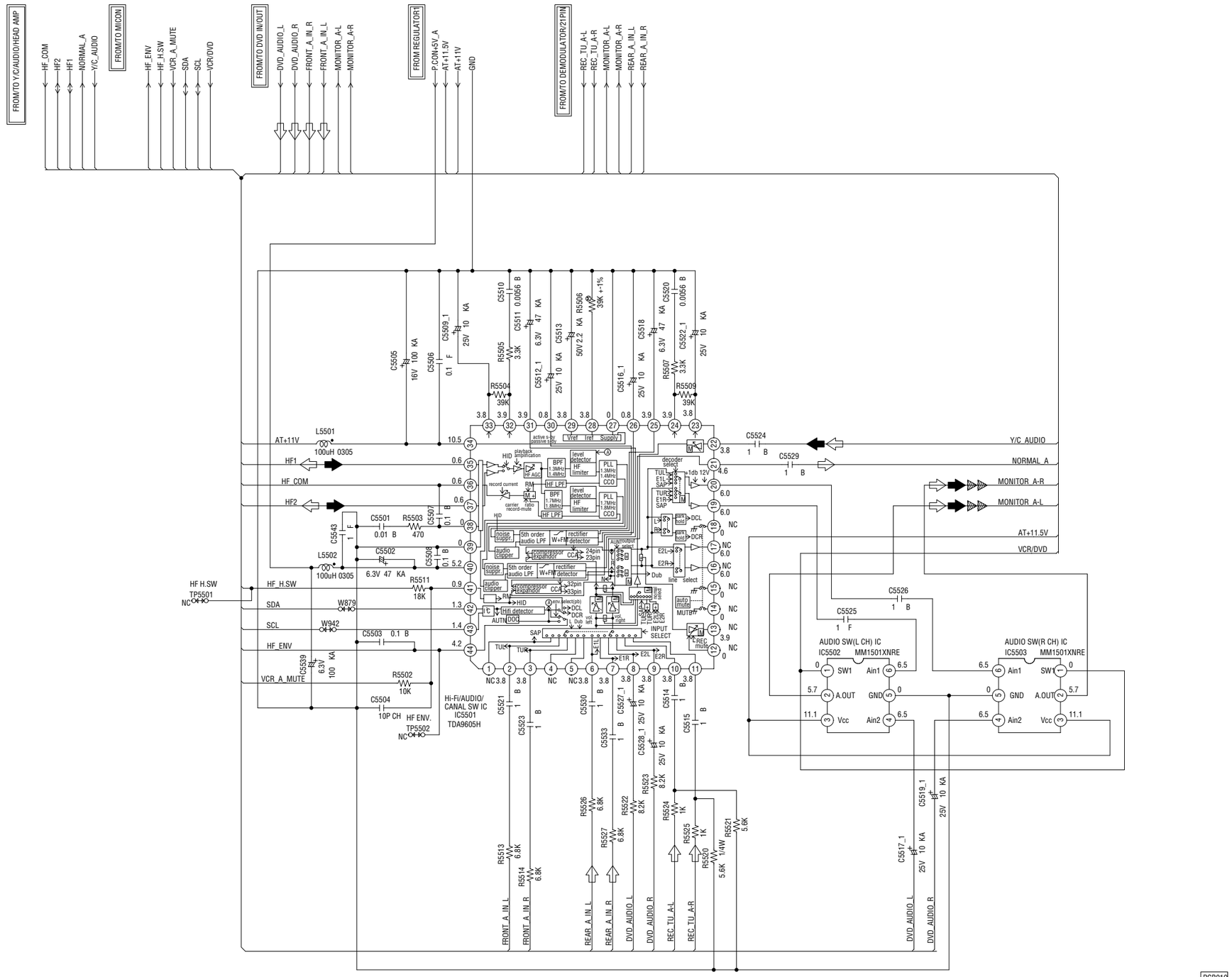
CAUTION: DIGITAL TRANSISTOR



TUNER AUDIO SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

SECAM CHROMA/Hi-Fi SCHEMATIC DIAGRAM

(VCR PCB)



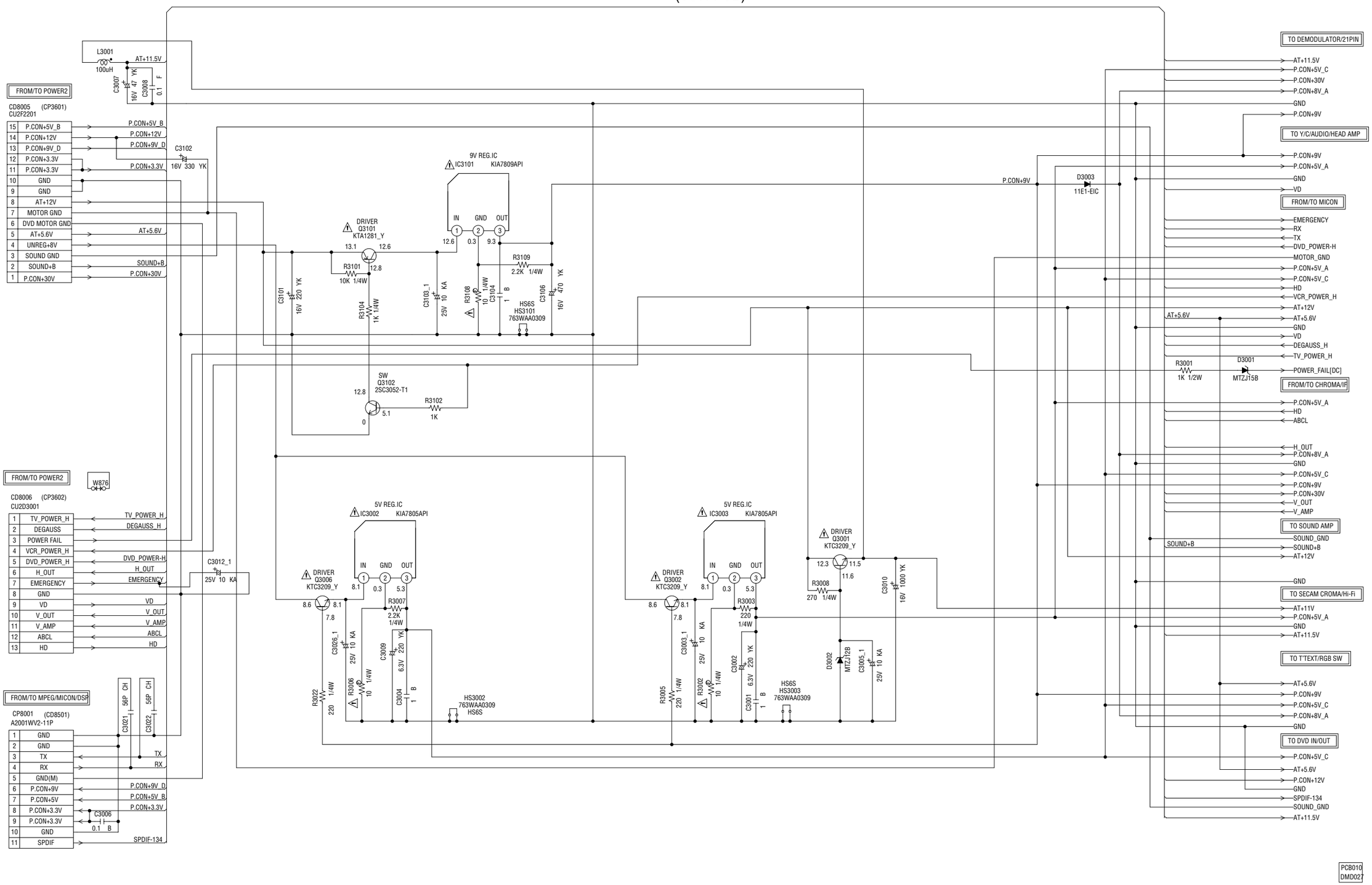
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

AUDIO SIGNAL(PB)
AUDIO SIGNAL(REC)
TUNER AUDIO SIGNAL

REGULATOR1 SCHEMATIC DIAGRAM

(VCR PCB)



NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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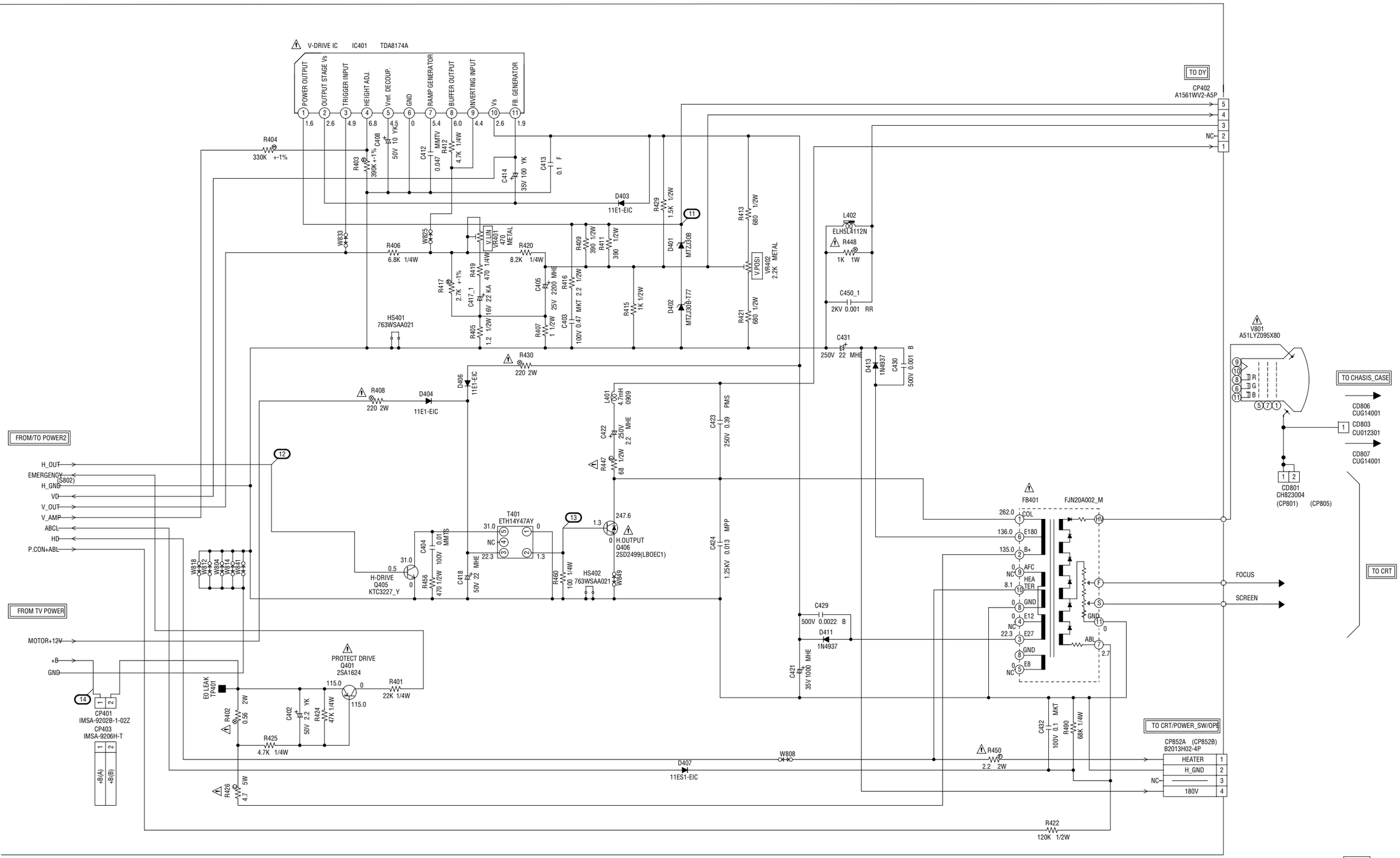
DEFLECTION SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

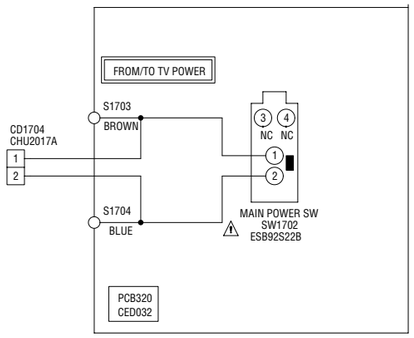
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

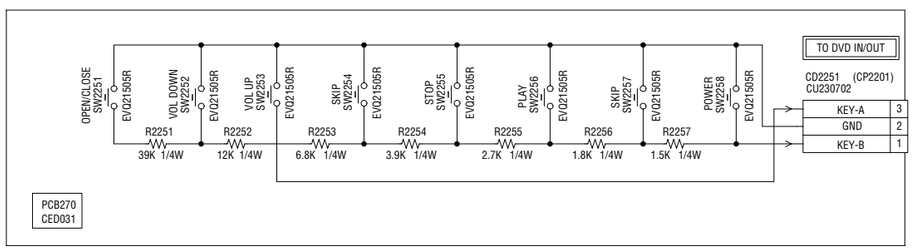
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CRT/POWER SW/OPERATION SCHEMATIC DIAGRAM

(POWER SW PCB)



(OPERATION PCB)



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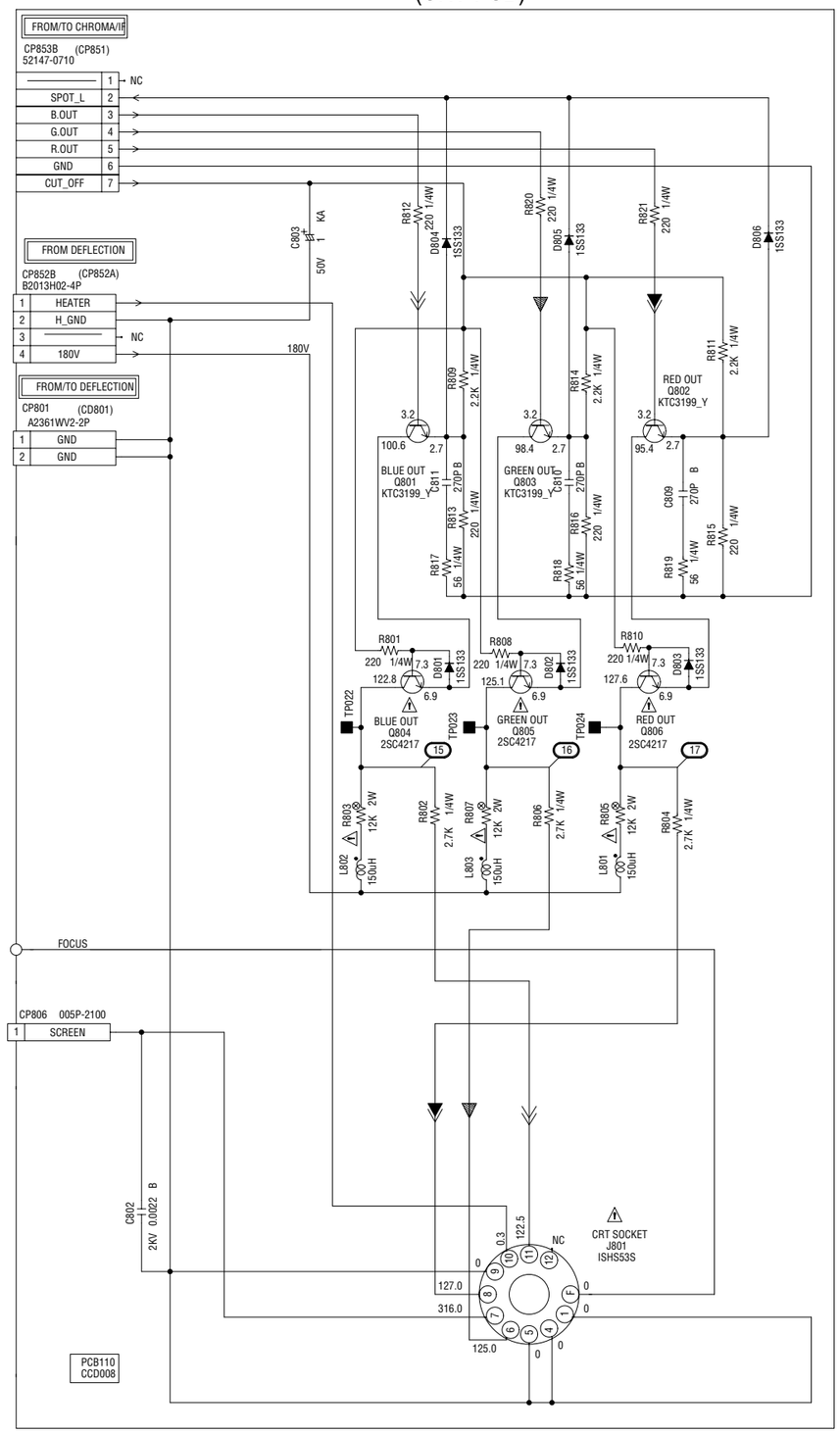
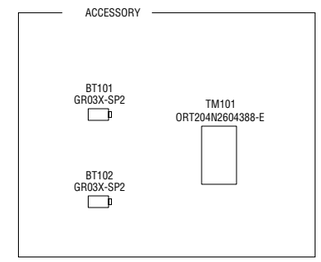
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

(CRT PCB)





CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY.USE ONES DESCRIBED IN PARTS LIST ONLY 。

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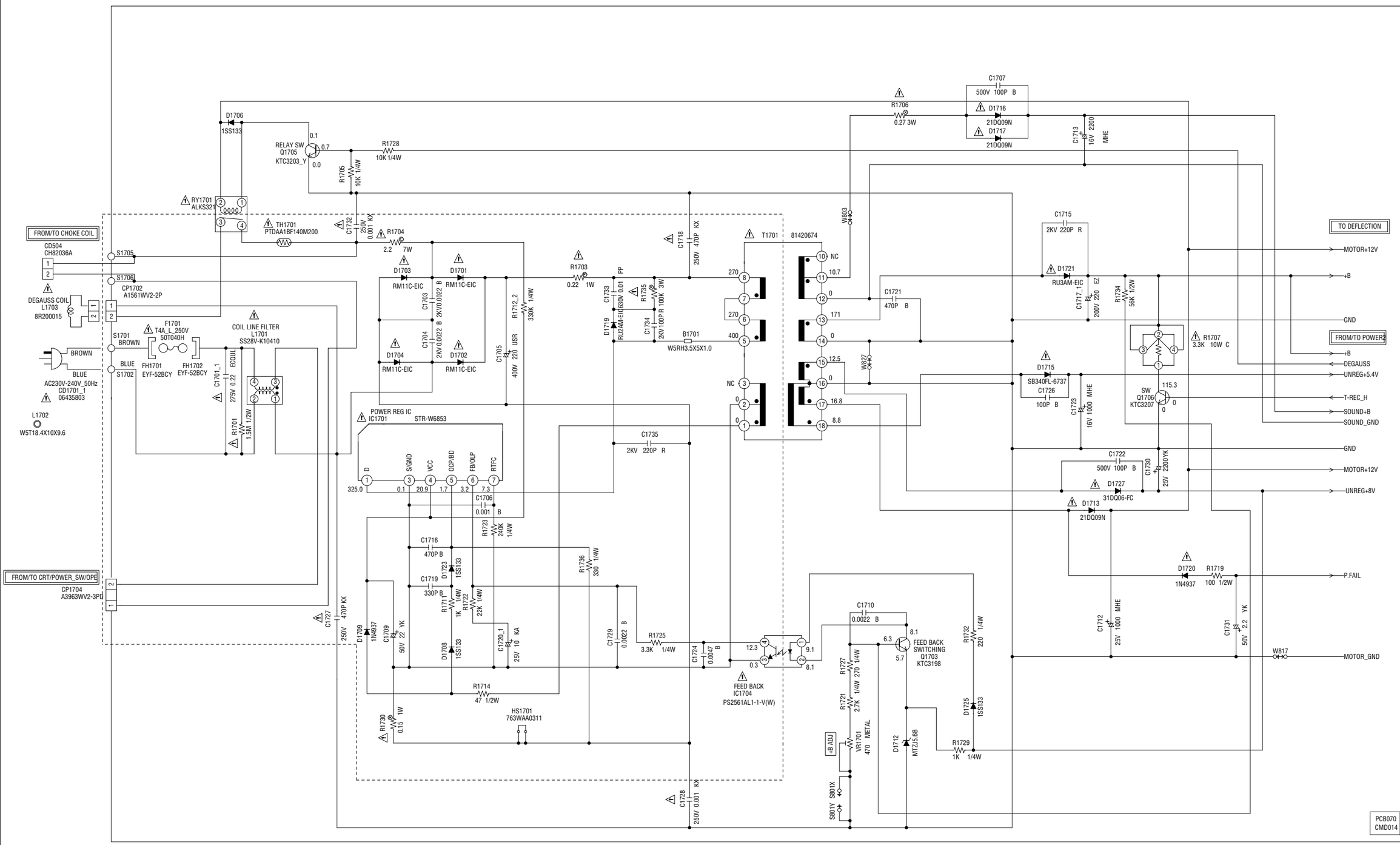
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

TV POWER SCHEMATIC DIAGRAM

(MAIN PCB)



ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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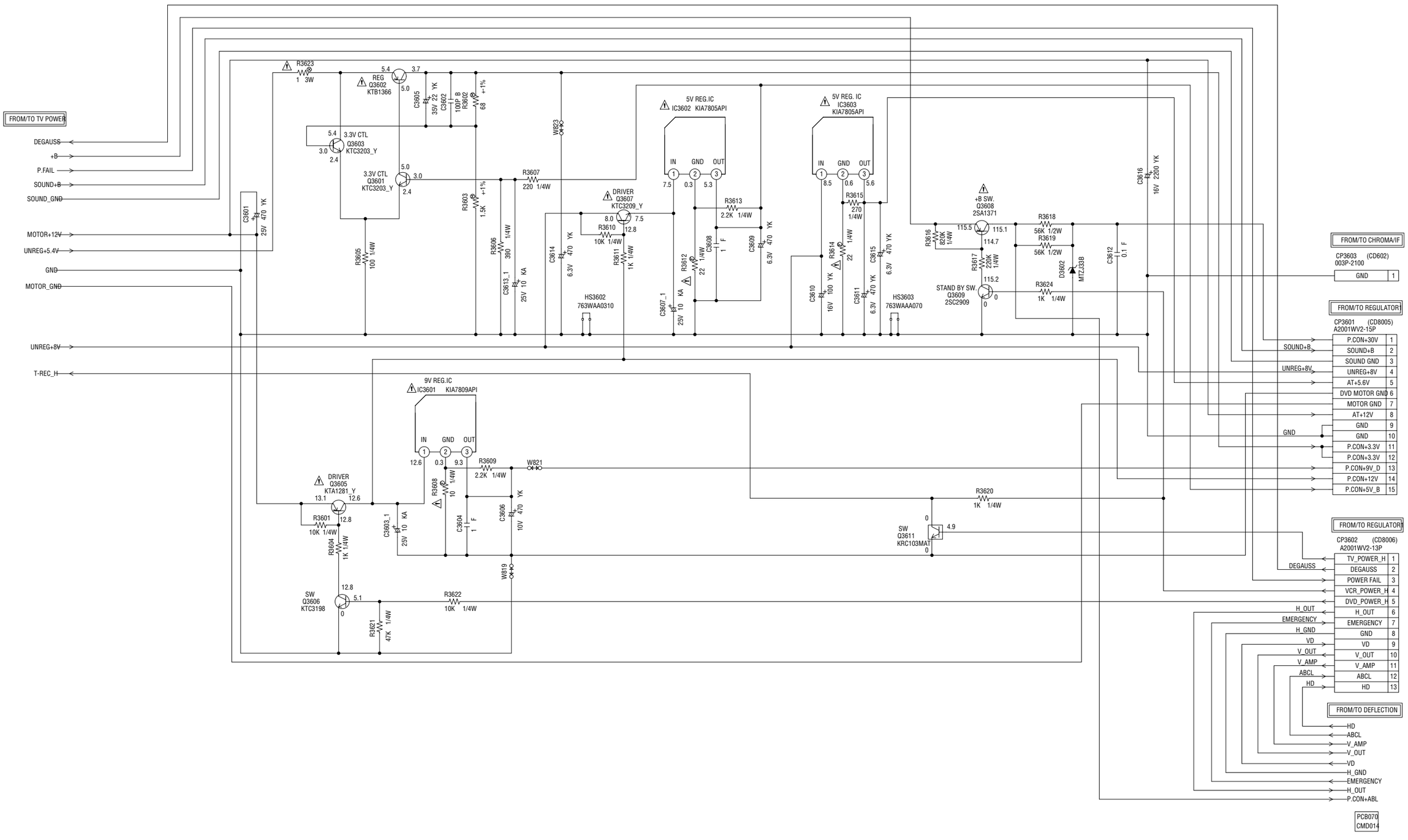
POWER2 SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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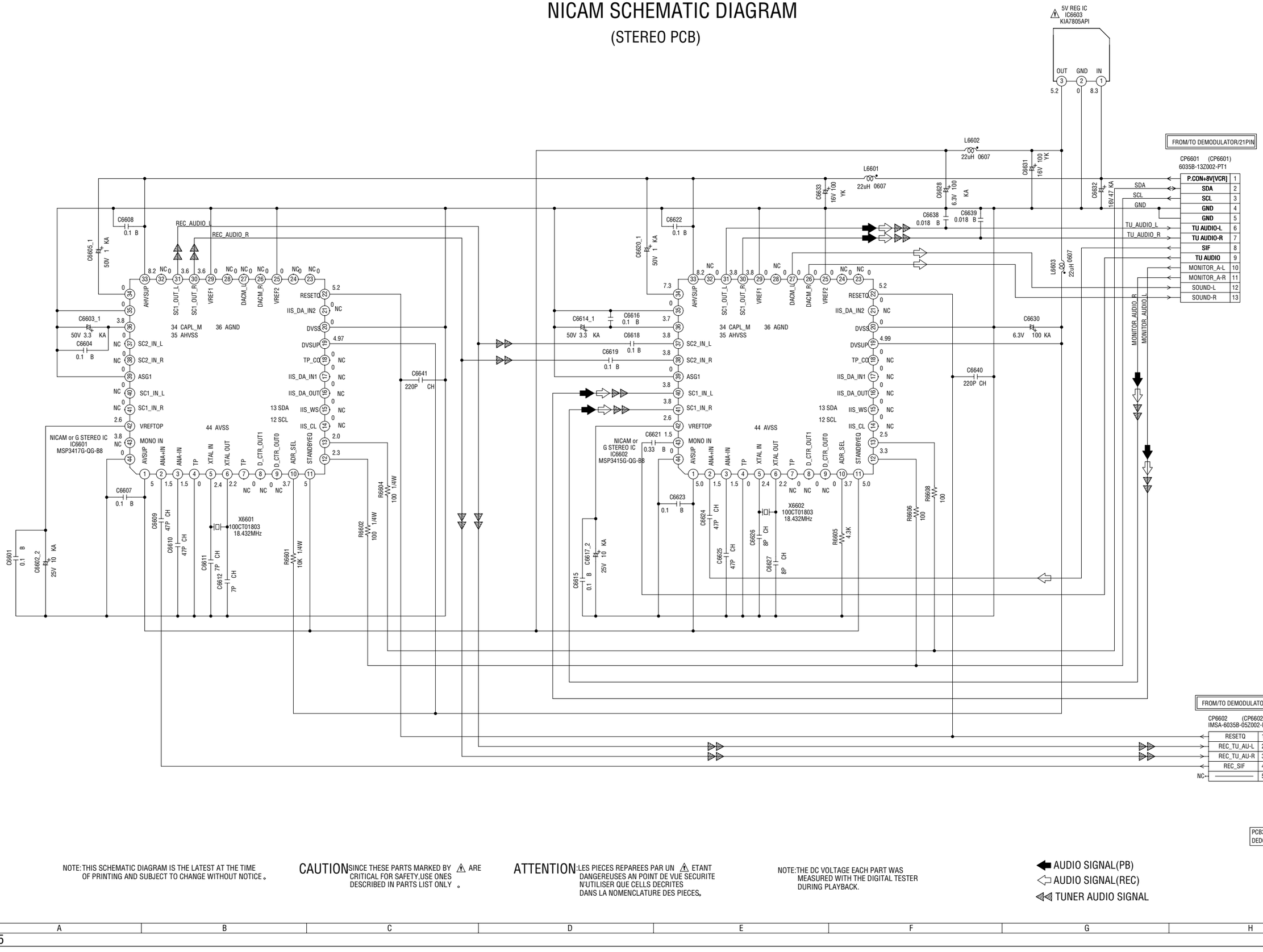
CAUTION: DIGITAL TRANSISTOR

NICAM SCHEMATIC DIAGRAM

(STEREO PCB)



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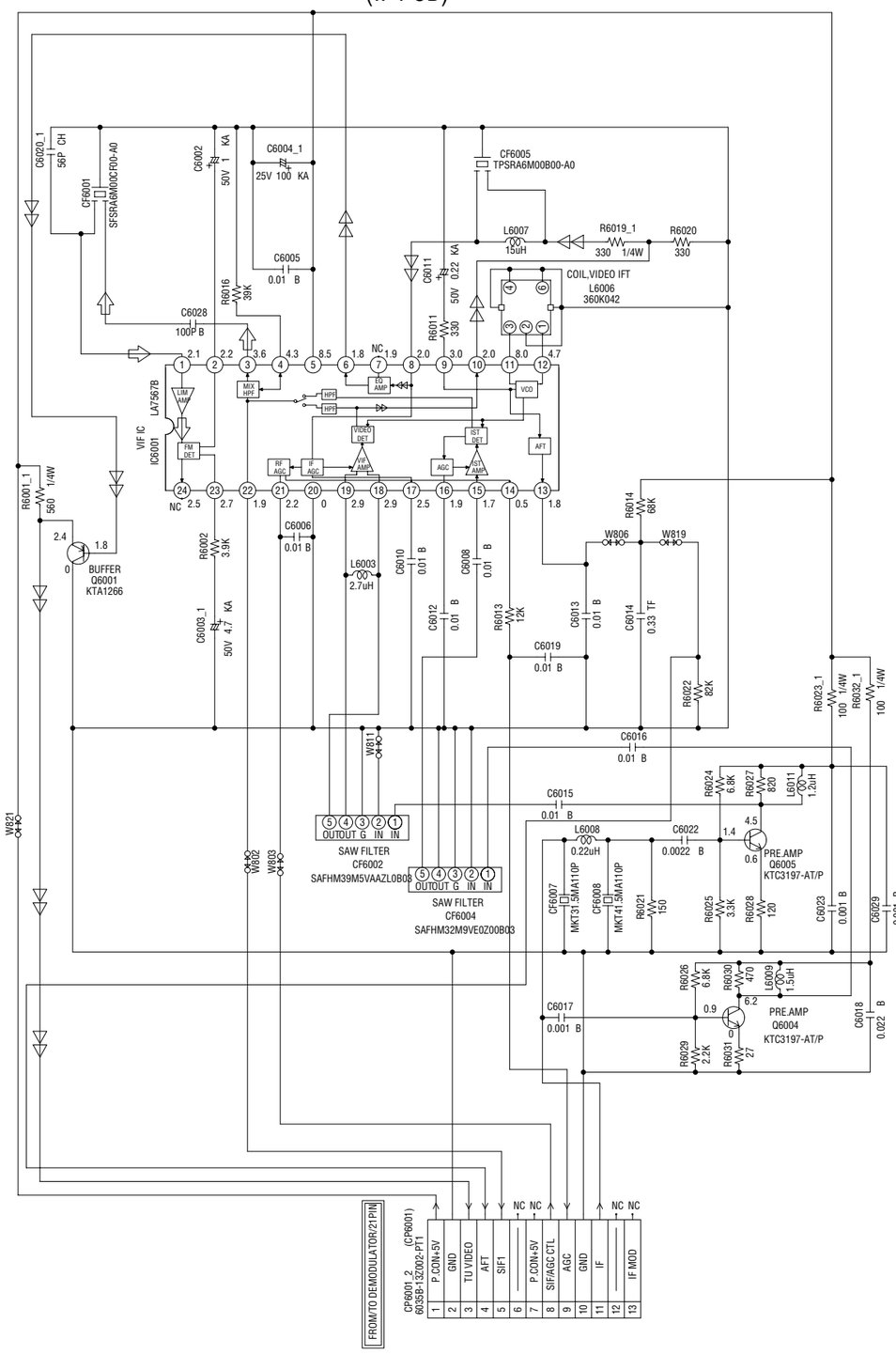
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

- AUDIO SIGNAL(PB)
- AUDIO SIGNAL(REC)
- TUNER AUDIO SIGNAL

IF SCHEMATIC DIAGRAM

(IF PCB)



PCB300
DED027

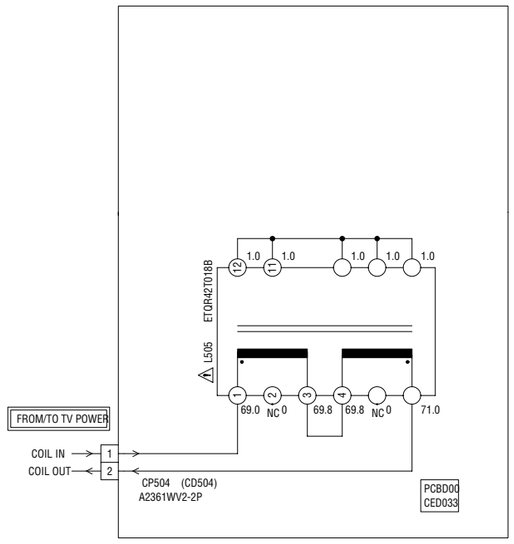
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

◁◁ TUNER VIDEO SIGNAL
⇦ AUDIO SIGNAL(REC)

CHOKE COIL SCHEMATIC DIAGRAM

(FILTER PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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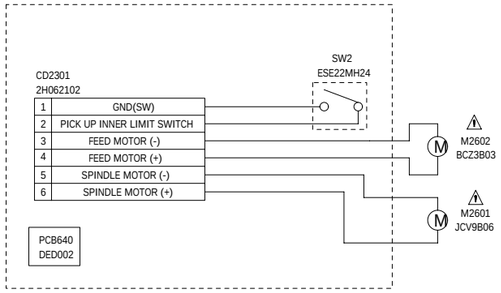
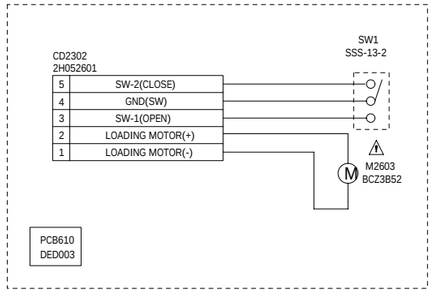
LOADING MOTOR/SW SCHEMATIC DIAGRAM

(SW PCB)



(LOADING MOTOR PCB)



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INTERCONNECTION DIAGRAM

DVD DRIVE DM-3

T-	1	1	T-
T+	2	2	T+
F-	3	3	F-
F+	4	4	F+
MON(DVD)	5	5	MON(DVD)
NC(SW)	6	6	NC(SW)
VOL(DVD)	7	7	VOL(DVD)
GND(DVD)	8	8	GND(DVD)
LD(DVD)	9	9	LD(DVD)
LD(CD)	10	10	LD(CD)
VOL(CD)	11	11	VOL(CD)
GND(CD)	12	12	GND(CD)
MON(COM)	13	13	MON(COM)
DVD/CD	14	14	DVD/CD
RF	15	15	RF
C	16	16	C
B	17	17	B
A	18	18	A
D	19	19	D
F	20	20	F
E	21	21	E
VCC	22	22	VCC
Vref	23	23	Vref
GND(PDIC)	24	24	GND(PDIC)

OPTICAL PICK-UP

SPINDLE MOTOR

SLED,LOADING MOTOR

FG SENSER

CLOSE	1	1	CLOSE
GND(D)	2	2	GND(D)
OPEN	3	3	OPEN
LD+	4	4	LD+
LD-	5	5	LD-

FFC

SP1+	1	1	SP1+
SP1-	2	2	SP1-
SLD+	3	3	SLD+
SLD-	4	4	SLD-
LIMIT SW	5	5	LIMIT SW
SW(GND)	6	6	SW(GND)

DVD PCB PCB130 DMD008

CD4002		CP8001	
GND	1	1	GND
GND	2	2	GND
TX	3	3	TX
RX	4	4	RX
GND(M)	5	5	GND(M)
P.CON+9V	6	6	P.CON+9V
P.CON+5V	7	7	P.CON+D5V
P.CON+3.3V	8	8	P.CON+3.3V
P.CON+3.3V	9	9	P.CON+3.3V
GND	10	10	GND
SPDIF-134	11	11	SPDIF-134

CP8101_3		CD8101 FFC		CP8002	
CVBS	1	1	12	12	CVBS
GND	2	2	11	11	GND
C(CVBS)	3	3	10	10	C(CVBS)
GND	4	4	9	9	GND
Y	5	5	8	8	Y
GND	6	6	7	7	GND
AUDIO-L	7	7	6	6	AUDIO-L
GND	8	8	5	5	GND
AUDIO-R	9	9	4	4	AUDIO-R
ZERO	10	10	3	3	ZERO
DVD RESET	11	11	2	2	DVD RESET
GND	12	12	1	1	GND

CP8005	
15	P.CON+5V_B
14	P.CON+12V
13	P.CON+9V_D
12	P.CON+3.3V
11	P.CON+3.3V
10	GND
9	GND
8	AT+12V
7	MOTOR GND
6	DVD MOTOR GND
5	AT+5.6V
4	UNREG+8V
3	SOUND GND
2	SOUND+B
1	P.CON+30V

CD601

CD602 — GND

CP3603	
GND	1

CP3602		CD8006	
TV_POWER_H	1	1	TV_POWER_H
DEGAUSS	2	2	DEGAUSS
POWER FAIL	3	3	POWER FAIL
VCR_POWER_H	4	4	VCR_POWER_H
DVD_POWER_H	5	5	DVD_POWER_H
H_OUT	6	6	H_OUT
EMERGENCY	7	7	EMERGENCY
GND	8	8	GND
VD	9	9	VD
V_OUT	10	10	V_OUT
V_AMP	11	11	V_AMP
ABCL	12	12	ABCL
HD	13	13	HD

CP2601			CP2602		
1	T-	1	1	CLOSE	1
2	T+	2	2	GND(D)	2
3	F-	3	3	OPEN	3
4	F+	4	4	LD+	4
5	MON(DVD)	5	5	LD-	5
6	NC(SW)	6			
7	VOL(DVD)	7			
8	GND(DVD)	8			
9	LD(DVD)	9			
10	LD(CD)	10			
11	VOL(CD)	11			
12	GND(CD)	12			
13	MON(COM)	13			
14	DVD/CD	14			
15	RF	15			
16	C	16			
17	B	17			
18	A	18			
19	D	19			
20	F	20			
21	E	21			
22	VCC	22			
23	Vref	23			
24	GND(PDIC)	24			

CP2603		
1	SP1+	1
2	SP1-	2
3	SLD+	3
4	SLD-	4
5	LIMIT SW	5
6	SW(GND)	6

CP2201		CD2251	
KEY-B	3	3	KEY-B
GND	2	2	GND
KEY-A	1	1	KEY-A

OPERATION PCB PCB270 TECB14

CP6001		CP6001_2	
P.CON+5V	1	1	P.CON+5V
GND	2	2	GND
TU VIDEO	3	3	TU VIDEO
AFT	4	4	AFT
SIF1	5	5	SIF1
	6	6	
P.CON+5V	7	7	
SIF/AGC CTL	8	8	SIF/AGC CTL
AGC	9	9	AGC
GND	10	10	GND
IF	11	11	IF
SECAM VL-H	12	12	
IF MOD	13	13	

PCB300 DED027

STEREO PCB PCB310 DED026

CP6602		CP6601	
RESET0	1	P.CON+8V(VCR)	1
REC_TU_AU-L	2	SDA	2
REC_TU_AU-R	3	SCL	3
REC_SIF	4	GND	4
	5	GND	5
		TU AUDIO-L	6
		TU AUDIO-R	7
		SIF	8
			9
		MONITOR_A-L	10
		MONITOR_A-R	11
		SOUND-L	12
		SOUND-R	13

CP6602		CP6601	
RESET0	1	P.CON+8V(VCR)	1
REC_TU_AU-L	2	SDA	2
REC_TU_AU-R	3	SCL	3
REC_SIF	4	GND	4
	5	GND	5
		TU AUDIO-L	6
		TU AUDIO-R	7
		SIF	8
			9
		MONITOR_A-L	10
		MONITOR_A-R	11
		SOUND-L	12
		SOUND-R	13

SPEAKER 8 OHM SP353

SPEAKER 8 OHM SP351

COMMAND TRANSMITTER TM101

FULL ERASE HEAD ASS'Y

H5002

FE HEAD (HOT)	1	1
FE HEAD (GND)	2	2

CD352

CP352		
SOUND L+	4	4
SOUND L-	3	3
SOUND R-	2	2
SOUND R+	1	1

L352

OS2202

Vout 1 GND 2 B+ 3

CP4503		
FE HEAD(HOT)	1	1
FE HEAD(GND)	2	2

HALL SENSOR, MAIN COIL, ROTOR MAGNET, MR FG SENSOR (VCC, O, G)

HALL VCC, HALL IN, OUT SWITCH LOGIC

CP101		
CAP_FG	1	1
CAP_VCO	2	2
VCC	3	3
CAP.M F/R	4	4
I_LIMIT	5	5
MOTOR GND	6	6
GND	7	7
LD/CY_VCO	8	8
CAP_CTL	9	9
LDM CTL	10	10
CYL_FG/PG	11	11
CYL_CTL	12	12

CAPSTAN DD UNIT ASS'Y M2001

FFC 1 2 3 4 5 6 7 — RED — WHITE — LM

LOADING MOTOR M101

D-PG GND	D-PG OUT	M-GND	D-COM	D-W OUT	D-V OUT	D-U OUT	
1	2	3	4	5	6	7	

UN4001 CYLINDER UNIT ASS'Y

CP4501			FPC
HF1_(R)	9	9	HI-FI HEAD
HF_COM	8	8	
HF2 (L)	7	7	
SP-CH1 (R)	6	6	SP HEAD
SP_COM	5	5	
SP-CH2 (L)	4	4	
EP/LP-CH1 (R)	3	3	EP/LP HEAD
EP/LP_COM	2	2	
EP/LP-CH2 (L)	1	1	

CP4505		CD4005 FFC		HEAD AUDIO CONTROL ASS'Y H5001	
AUDIO REC	6	6	6	AUDIO REC	6
AUDIO PB	5	5	5	AUDIO PB	5
CTL+	4	4	4	CTL+	4
CTL-	3	3	3	CTL-	3
AE HEAD(+)	2	2	2	AE HEAD(+)	2
AE HEAD(-)	1	1	1	AE HEAD(-)	1

AUDIO, CONTROL, AE

21PIN JACK J4201

MONITOR TUNER TU601

1	AGC	
NC	NC	2
		3
4	SCL	
5	SDA	
NC	NC	6
7	+5V	
NC	NC	8
9	+30V	
NC	NC	10
11	IF	

VCR PCB PCB010 DMD027

CP851	
1	
2	SPOT_L
3	B.OUT
4	G.OUT
5	R.OUT
6	GND
7	CUT_OFF

CP853B	
	1
SPOT_L	2
B.OUT	3
G.OUT	4
R.OUT	5
GND	6
CUT_OFF	7

CRT SOCKET J801

V801 H.V ANODE CRT

CP806		CP852B					CP808B					CP852A				
SCREEN	FOCUS	HETER	H_GND			180V	180V	NC	GND	GND	HEATER	HETER	H_GND			180V
1	2	1	2	3	4		1	2	3	4	5	1	2	3	4	

CP402 5 4 3 2 1 NC

FOCUS SCREEN RBT RB401

FILTER PCB PCBD00 CED033

L505

CP504 CD504 S1705 S1706

DEGAUSS COIL L1703

AC230V-240V_50Hz CD1701

CP1702 CP1701

BROWN BLUE

CP403 CP401

+B(A)	1	1
+B(B)	2	2

TV MT PCB PCB070 CMD014

S1703 S1704 MAIN POWER SW SW1702

POWER SW PCB PCB320 TECB13

CRT PCB PCB110 TCC429

CD806 CD801 CP803 GND GND GND CD803_1

AUDIO OUT J8007 H1 H2 H3 H4 H5

YELLOW FRONT VIDEO JACK J2202

WHITE FRONT AUDIO JACK J2203

RED FRONT AUDIO JACK J2204

HEADPHONE_JACK J2201

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

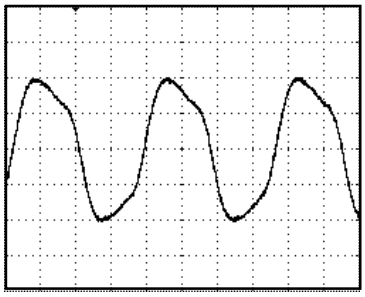
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

WAVEFORMS

MPEG/MICON/DSP

10ns
100mV

①

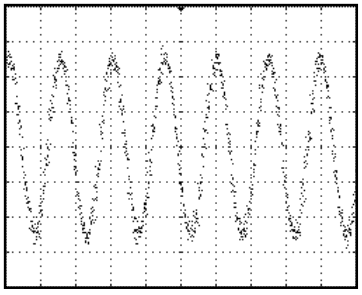


100ns
100mV

②

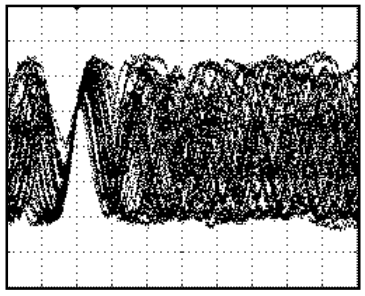
5ns
200mV

③



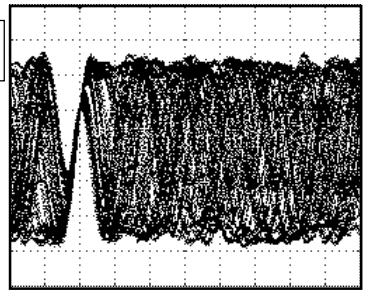
200ns
500mV

④



200ns
100mV

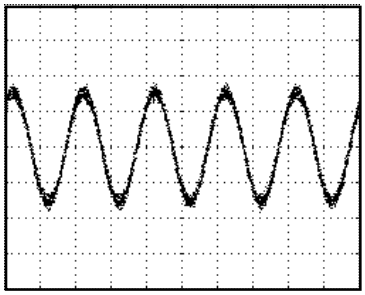
⑤



AUDIO/VIDEO

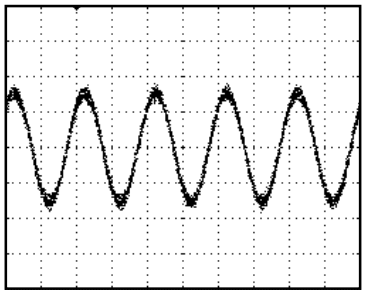
500µs
500mV

⑥



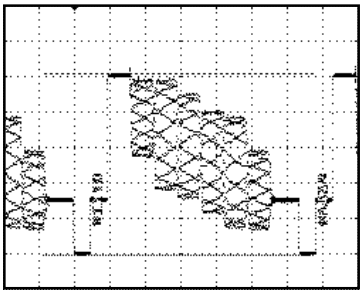
500µs
500mV

⑦



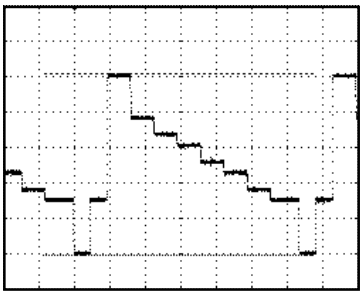
10µs
200mV

⑧



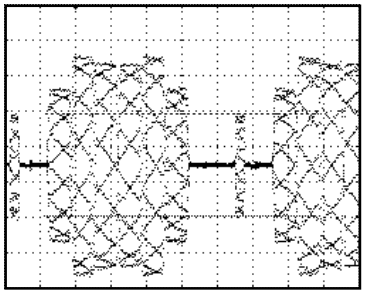
100µs
200mV

⑨



10µs
100mV

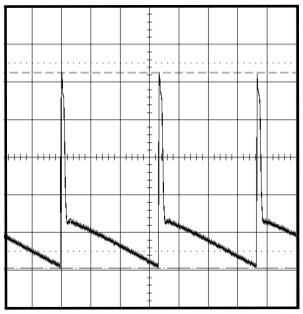
⑩



DEFLECTION

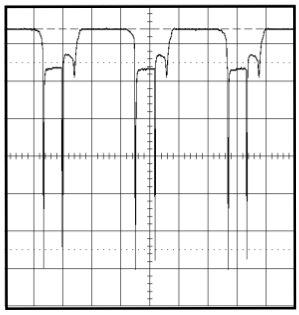
5ms
10.0V

⑪



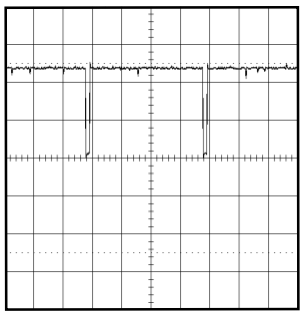
20µs
2.0V

⑫



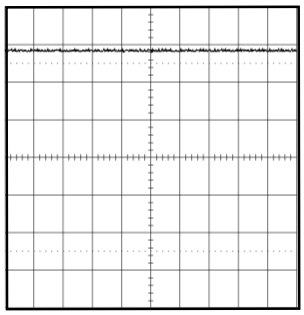
5ms
2.0V

⑬



0.1ms
20.0V

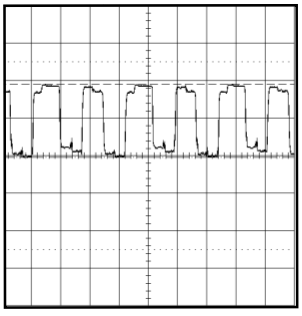
⑭



CRT

20µs
50.0V

⑮

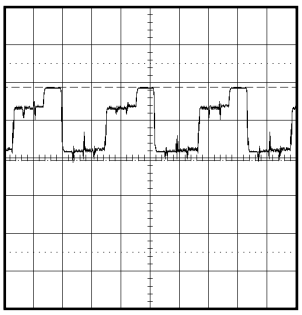


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

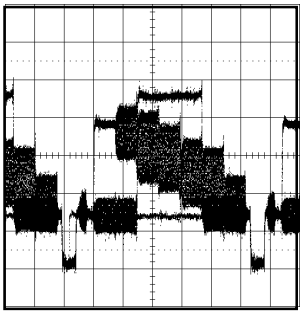
20µs
50.0V

⑯



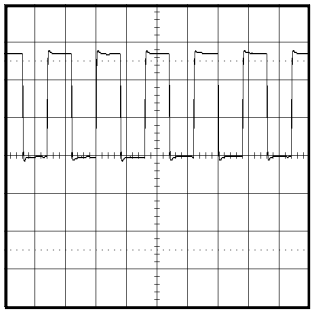
REC
10µs
0.5V

㉓



PB
0.5µs
2.0V

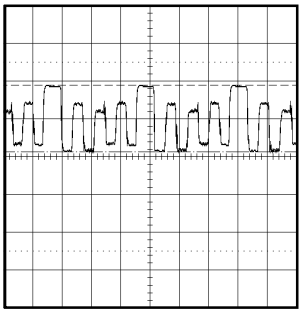
㉘



MICON

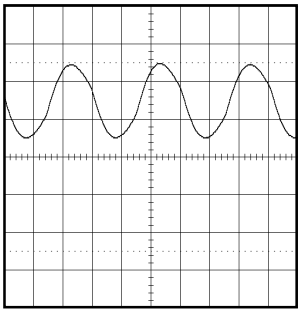
20µs
50.0V

⑰



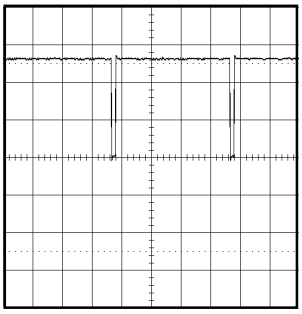
REC
10µs
1.0V

㉔



REC
5ms
2.0V

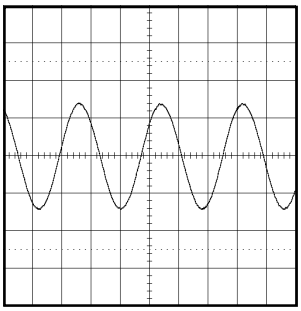
㉙



Y/C/AUDIO/HEAD AMP

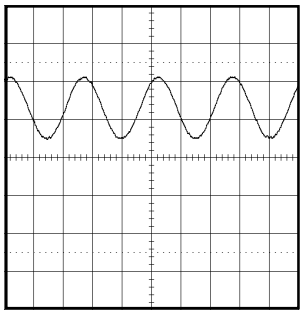
REC
5µs
20.0V

⑳



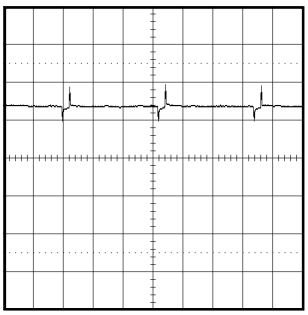
REC
1ms
2.0V

㉕



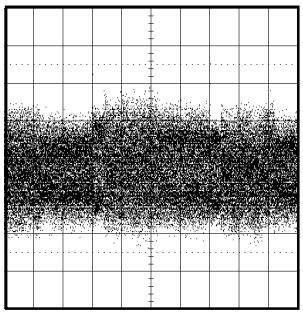
REC
20µs
2.0V

㉚



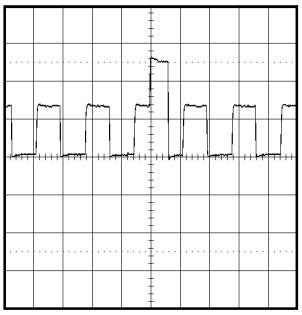
PB
5ms
50mV

㉑



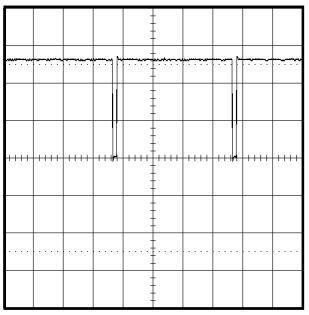
REC
1ms
2.0V

㉖



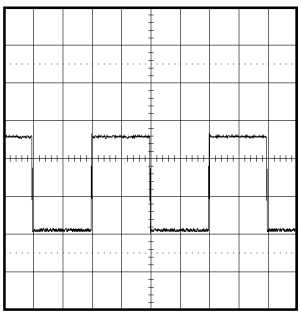
REC
5ms
2.0V

㉛



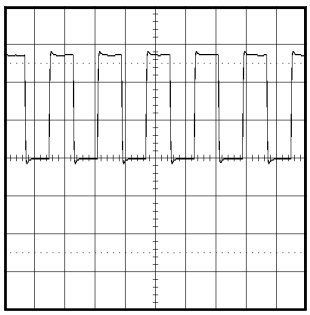
PB
10ms
2.0V

㉒



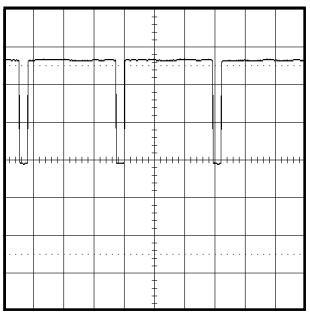
PB
0.5µs
2.0V

㉗



REC
20µs
2.0V

㉜



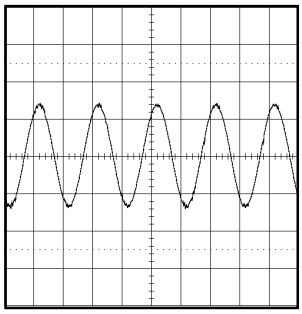
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

DVD IN/OUT

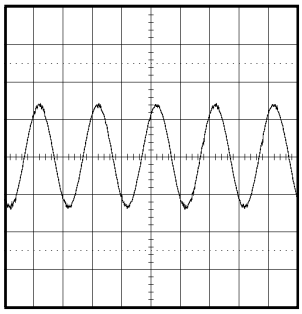
PB
0.5ms
0.5V

(33)



PB
0.5ms
0.5V

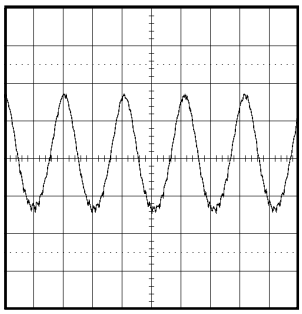
(34)



DEMODULATOR/21PIN

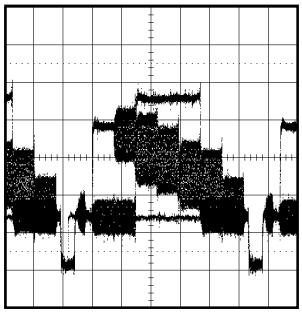
REC
0.5ms
0.5V

(35)



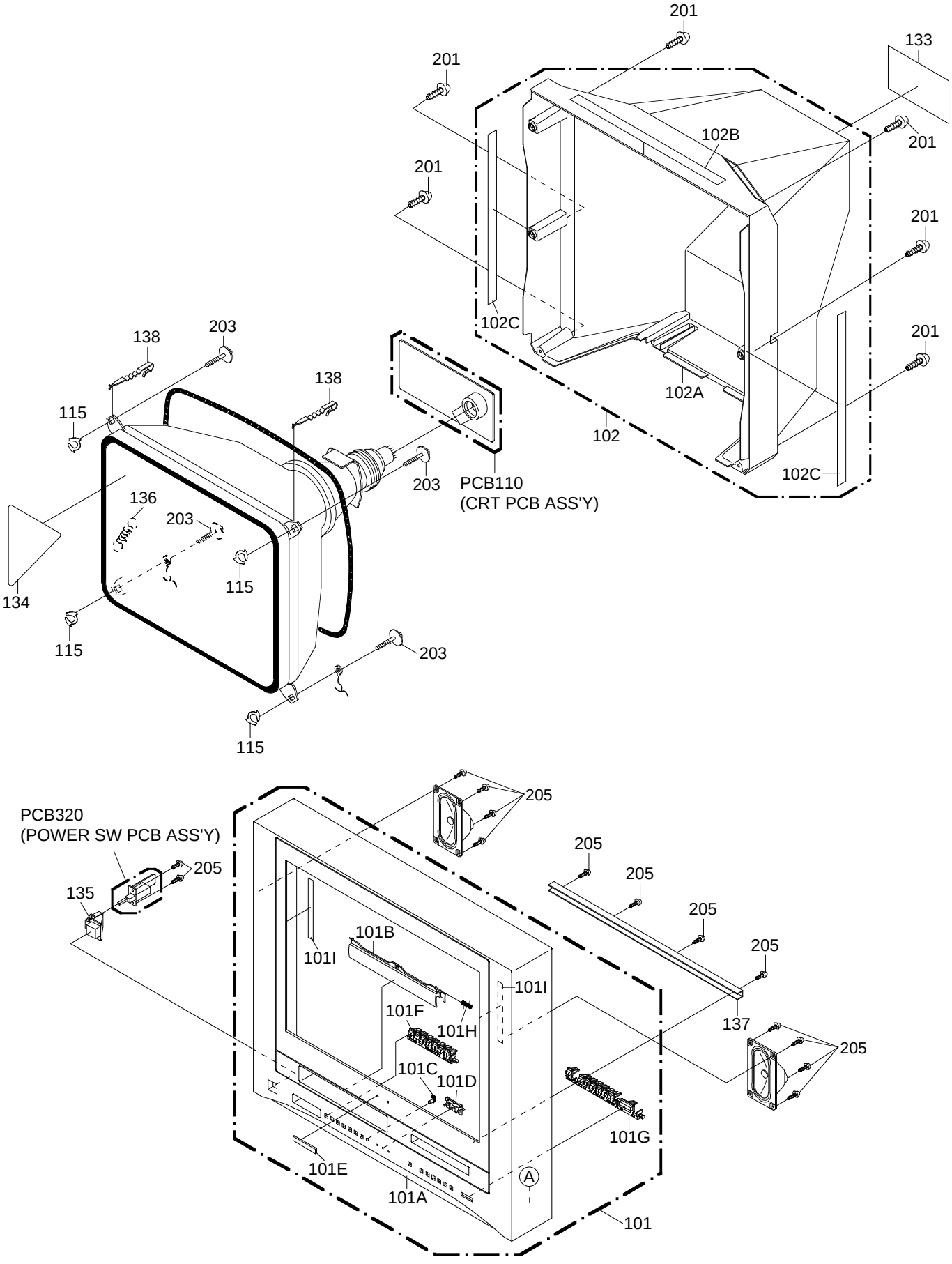
REC
10µs
0.5V

(36)

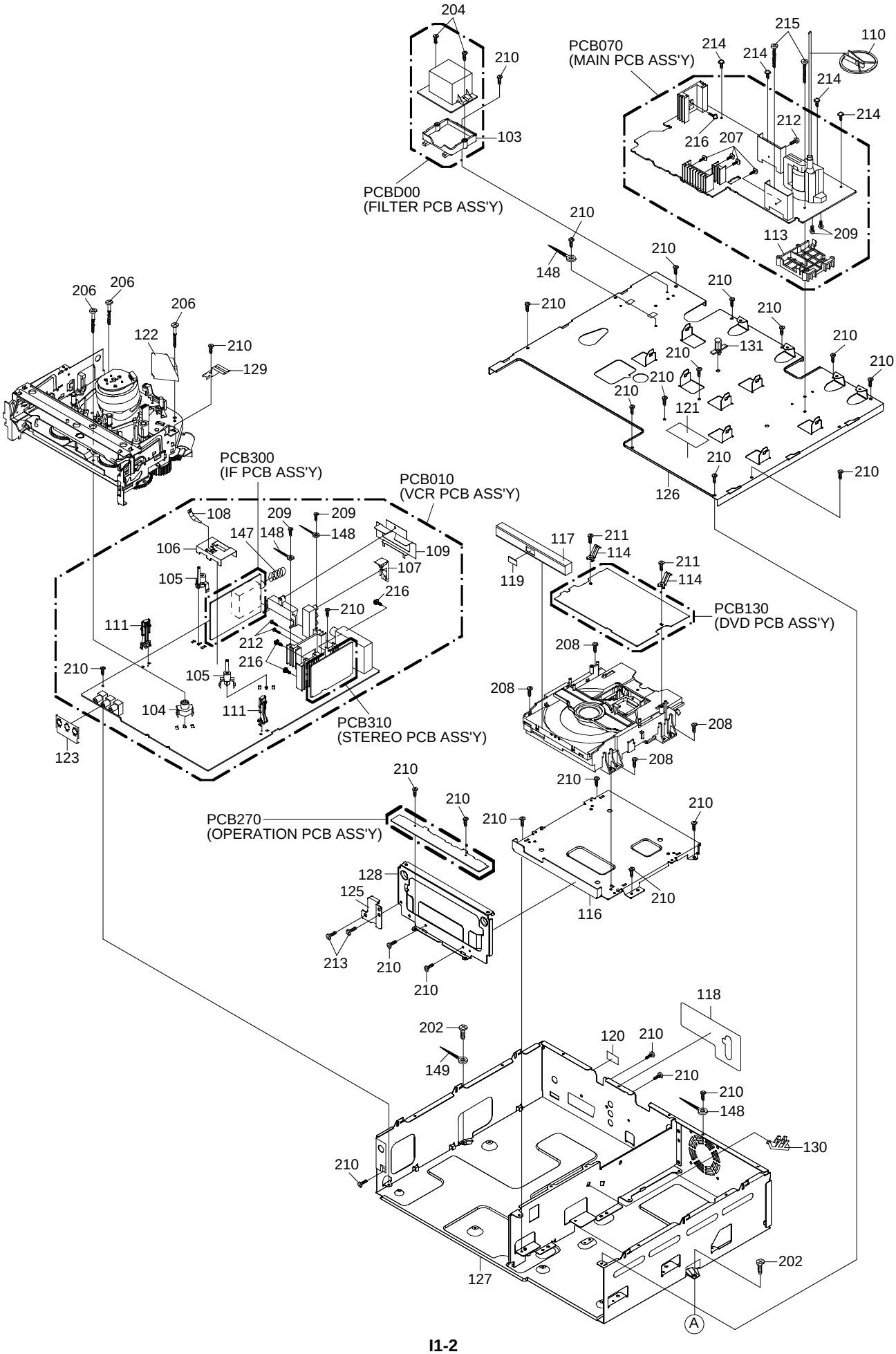


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

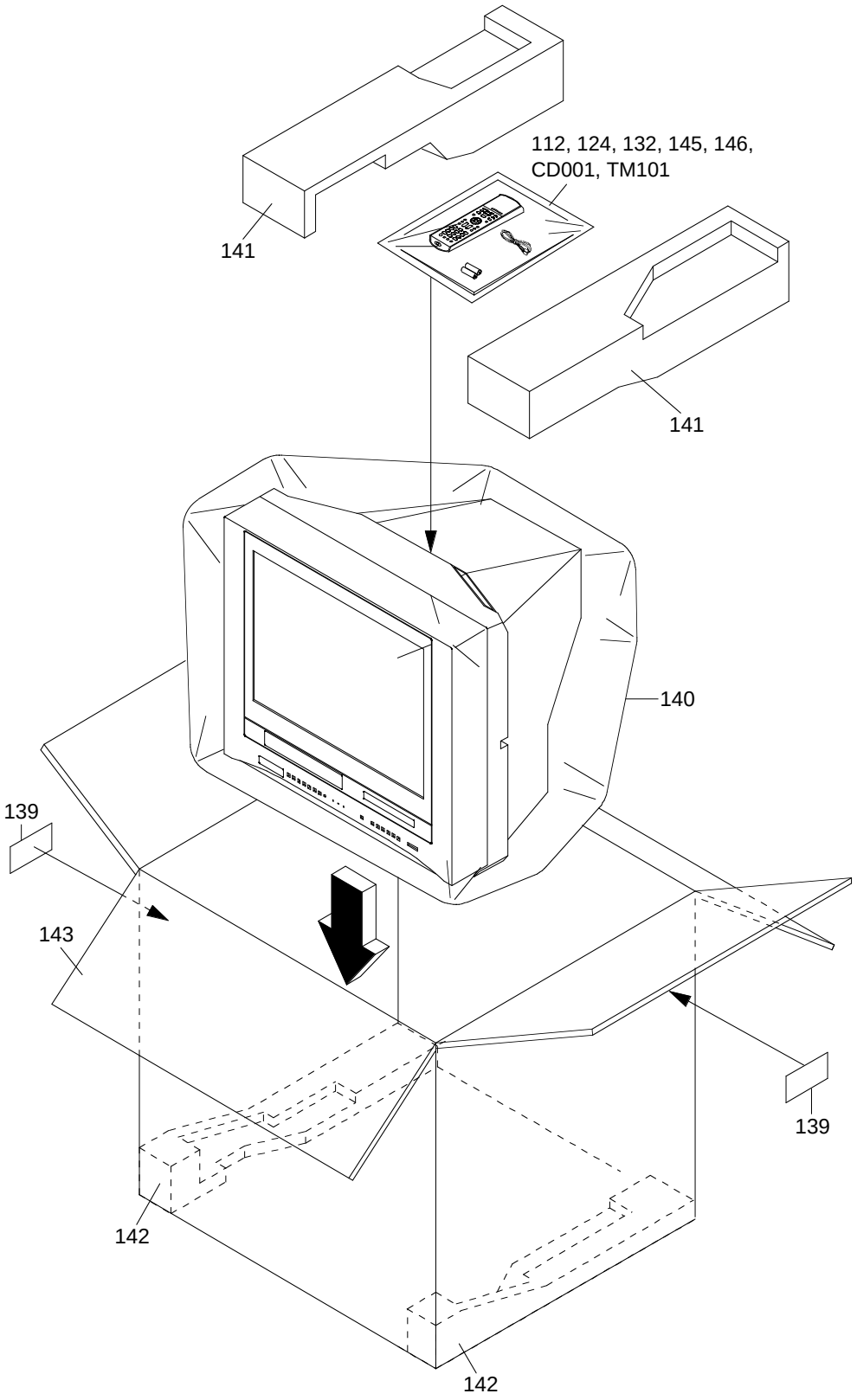
MECHANICAL EXPLODED VIEW



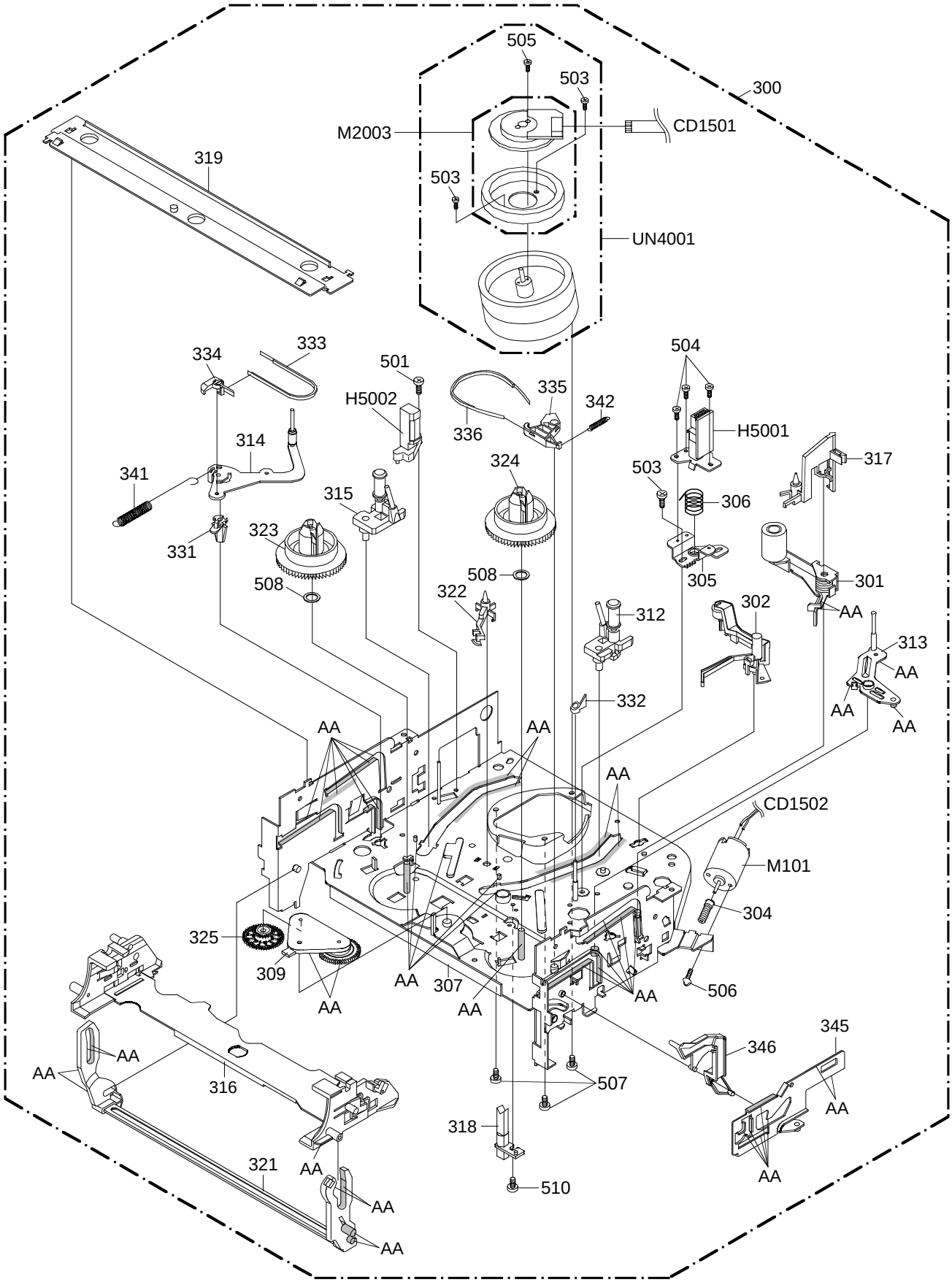
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW
(PACKING DIAGRAM)



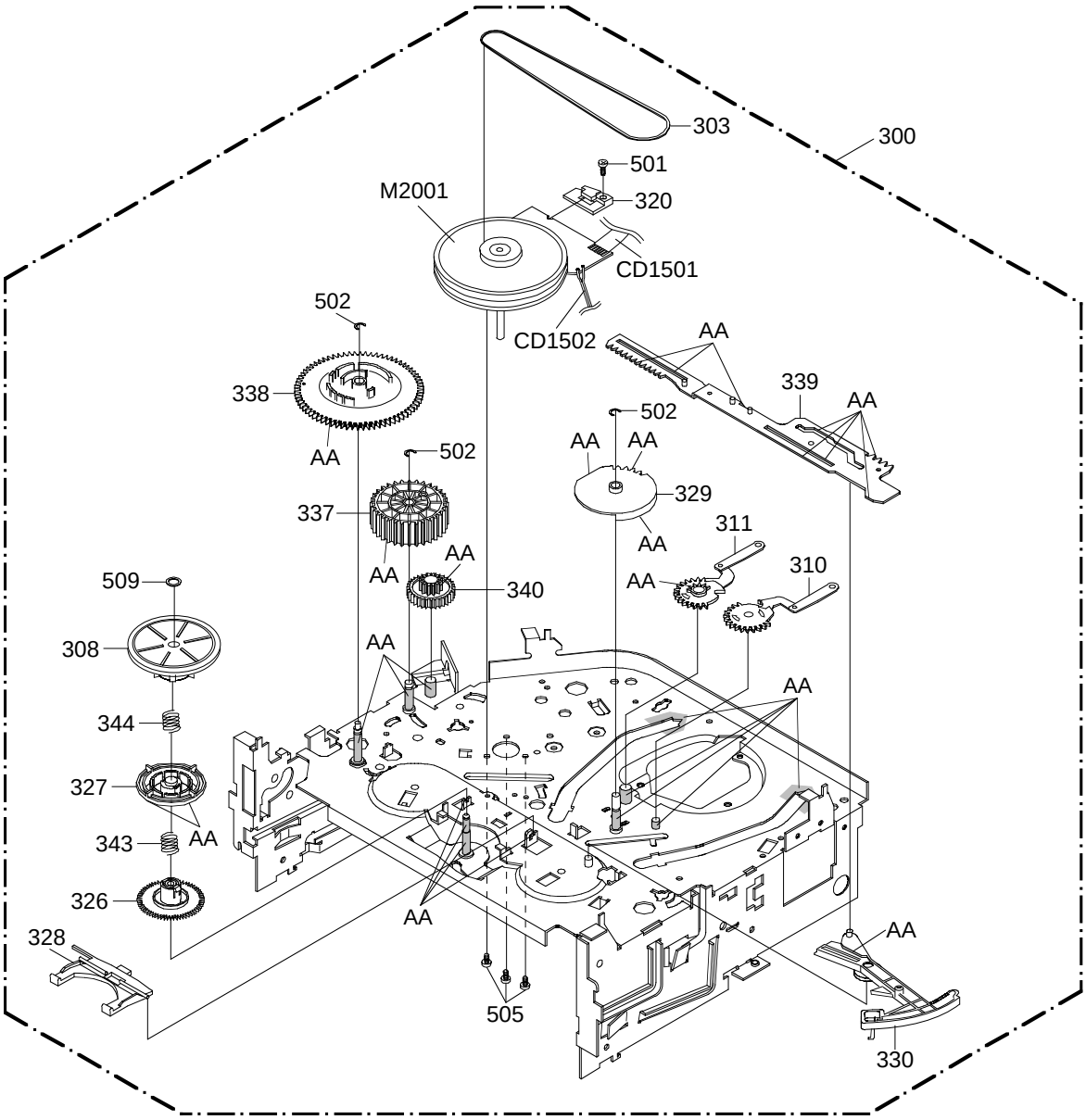
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

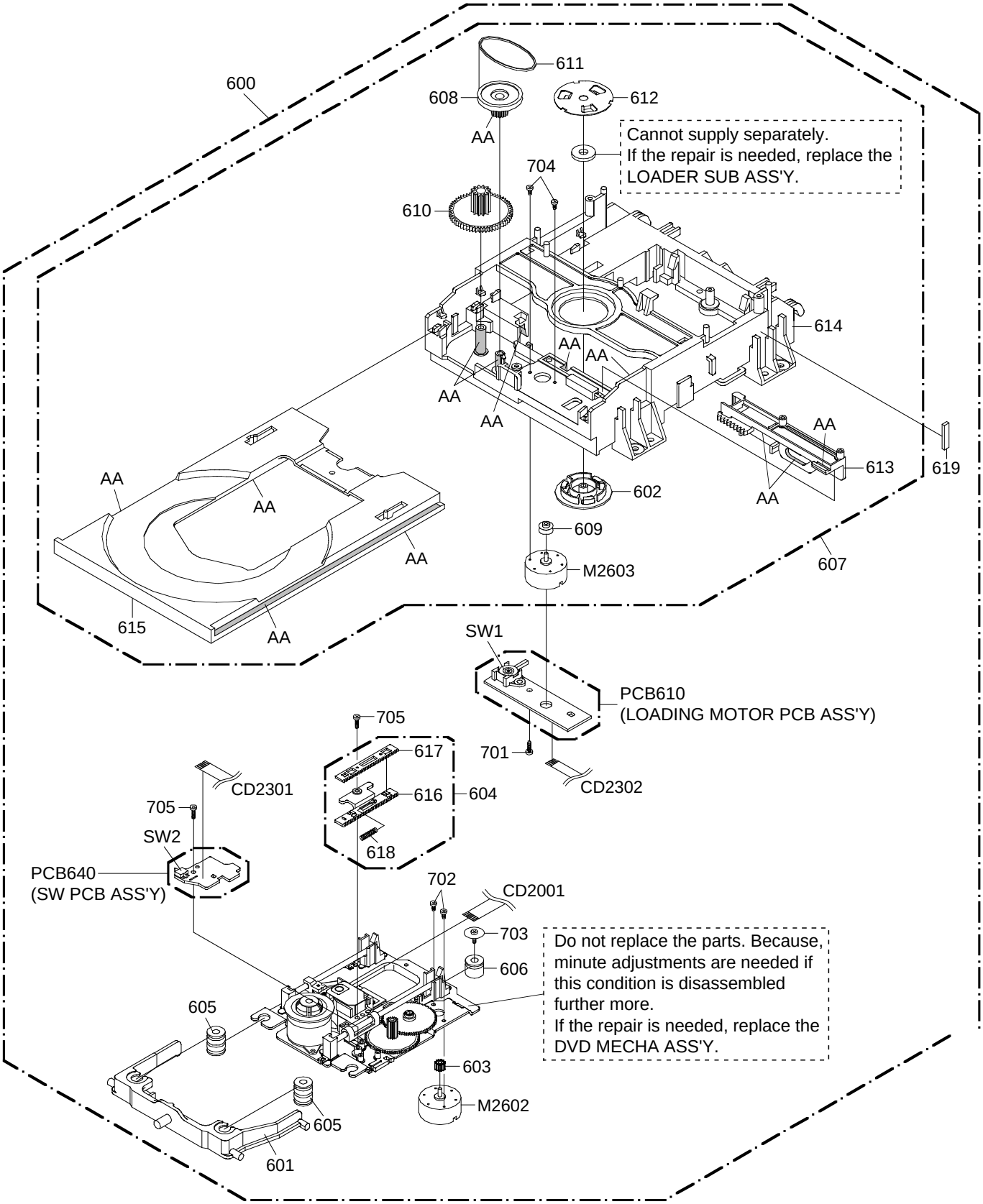
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section. Check if the correct grease is applied for each position.

DVD DECK EXPLODED VIEW



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
101	AE005962	7A701A316A	FRONT CABI ASS'Y
101A	AE005963	701WPJC923	CABINET,FRONT
101B	AE005964	712WPJC098	FLAP
101C	BZ710665	713WPA0160	GUIDE,REMOCON
101D	BZ710666	713WPA0195	GLASS,LED
101E	AE000155	7235490021	BADGE,BRAND
101F	AE005965	735WPBB320	BUTTON,FRAME 1
101G	AE005966	735WPBB321	BUTTON,FRAME 2
101H	AD301686	743WKA0037	SPRING,FLAP
101I	AE003069	800WQ0A070	FELT SHEET
102	AE005967	7A702A100A	BACK CABI ASS'Y
102A	AE005968	702WPAA823	CABINET,BACK
102B	AE003113	800WQ0A036	FELT SHEET
102C	AE005969	800WQ0A092	FELT SHEET
103	AE001085	761WPA0281	HOLDER,TRANS
104	BZ710577	701WPA0686	HOLDER,DECK
105	BZ710658	701WPA0751	HOLDER,DECK
106	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP
107	BZ710659	752WSA0290	SHIELD,COMPO
108	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP
109	AE005665	761WSA0212	SHIELD,21PIN
110	BZ710260	899HV3T000	HOLDER,ANODE WIRE
111	BZ710498	85OP700038	HOLDER,END SENSOR
112	AE005970	J5P31117A	REGISTRATION CARD
113	BZ710459	761WPA0223	HOLDER,FBT
114	AE004480	753WUA0069	SPRING,EARTH
115	AE005971	769WSAA012	WASHER CRT T=0.5
116	AE004907	761WSAA023	ANGLE,DECK
117	AE005972	712WPBA121	PLATE,TRAY-FRONT
118	AE001087	7230007658	SHEET,JACK
119	AE000156	7235630001	SHEET,DVD
120	AE004261	7250000586	SHEET,PC
121	AE005122	726000A073	SHEET,CAUTION
122	BZ710633	752WSA0275	COVER,AC HEAD
123	BZ710671	752WSA0292	SHIELD,AV JACK
124	AE005973	J5N40307A	QUICK SET-UP SHEET
125	AE005974	752WSAA102	HOLDER,VCR
126	AE004262	752WSA0403	SHIELD,TOP
127	AE005975	7G752A004A	PLATE,BOTTOM ASS'Y
128	AE005976	753WSAA018	SHIELD,FRONT
129	AE001093	753WUA0062	SPRING,EARTH-TOP
130	BZ710694	774WPA0002	HOLDER,WIRE
131	BZ710284	890PS70100	PUSH SPACER
132	AE005977	J5N40301A	INSTRUCTION BOOK
133	AE005978	722549A423	SHEET,RATING
134	AE005979	723000C817	POP LABEL
135	AE005980	735WPJA849	BUTTON,POWER
136	BZ710660	741WUA0021	SPRING,EARTH
137	AE005981	752WSAA083	ANGLE,FRONT
138	BZ710259	762WPA0011	HOLDER,CRT WIRE
139	AE005982	723000C816	SHEET,BAR CODE
140	AE005914	791WHAA114	FILM BAG
141	BZ710679	792WHA0352	PACKAGE,TOP
142	AE000524	792WHA0473	PACKAGE,BOTTOM
143	AE005983	793WCDC597	GIFT BOX
144	AE005984	A5N4033975	INSTRUCTION BOOK KIT
145	AE005985	JB5KD400	POLYBAG,INSTRUCTION(RED CAUTION)
146	AE005986	J5P31141A	HELPLINE SHEET
147	AE003418	743WKAA011	SPRING,TUNER
148	BZ710039	8995034000	CORD CLIP UL CO.
149	AD301370	899EFBA002	WIRING-CLIP

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
201	AE004847	8117540A6U	SCREW,TAP TITE(B0) TRUSS	4x16
202	AE003523	811754080U	SCREW,TAP TITE(B0) TRUSS	4x8
203	AE005916	8141J50C5U	SCREW,TAP TITE(P) GW22	5x35
204	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
205	AE003529	811063080U	SCREW,TAP TITE(P) BRAZIER	3x8
206	AE005536	8109130B9U	SCREW,TAP TITE(B) R PAN	3x29
207	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
208	AE005541	810F13080U	SEMS(F)	3x8
209	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
210	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
211	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
212	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
213	AE005987	810723060U	SCREW,TAP TITE(S) BIND	3x6
214	AE005988	810793060U	SCREW,CUP(S)	3x6
215	AE005989	8107630A8U	SCREW,TAP TITE(S) BRAZIER	3x18
216	AE005659	8109I3080U	SCREW,TAP TITE(B) WH7	3x8

CHASSIS REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
	300	AE005990	A5N4033420A	DECK ASSY	A5N4033420A
	301	AE005514	85OA400245	PINCH ROLLER BLOCK VA2	
	302	BZ710682	85OA500026	AHC ASS'Y	
	303	BZ710193	85OP200290	BELT,CAPSTAN (S)	
	304	BZ710515	85OP600581	WORM	
	305	AE005919	85OP500091	BASE,AC HEAD	
	306	BZ710112	85OP800324	SPRING,AC HEAD	
	307	AE005835	85OA000528	MAIN CHASSIS ASS'Y	
	308	BZ710517	85OA200089	CLUTCH ASS'Y	
	309	AE005920	85OA200092	ARM IDLER ASS'Y	
	310	AE005836	85OA300068	LOADING ARM S UNIT	
	311	AE005837	85OA300070	LOADING ARM T UNIT	
	312	BZ710521	85OA400223	INCLINED BASE T UINT 3S	
	313	AE005838	85OA400249	P5 ARM ASS'Y 2	
	314	AE005839	85OA400248	TENSION ARM ASS'Y 2	
	315	BZ710524	85OA400231	INCLINED BASE S UNIT	
	316	AE005840	85OA900234	CASS HOLDER ASS'Y	
	317	BZ710552	85OP900745	CASS,OPENER	
	318	BZ710106	85OP700035	REFLECTOR,LED	
	319	AE005841	85OP900755	BRACKET,TOP 3V	
	320	AE004275	85OP400549	HOLDER,CAPSTAN	
	321	AE005842	85OA900233	LINK UNIT	
	322	BZ710531	85OP000496	POST,CASS GUIDE	
	323	BZ710532	85OP200316	REEL,S (S)	
	324	BZ710533	85OP200317	REEL,T (S)	
	325	BZ710534	85OP200308	GEAR,IDLER	
	326	BZ710535	85OP200311	GEAR,CLUTCH	
	327	BZ710536	85OP200312	GEAR,COUPLING	
	328	BZ710537	85OP200313	LEVER,CLUTCH	
	329	BZ710538	85OP300194	GEAR,MAIN LOADING	
	330	BZ710092	85OP400490	LEVER,TENSION	
	331	BZ710093	85OP400492	HOLDER,TENSION	
	332	BZ710366	85OP400520	CAP.P4	
	333	BZ710762	85OP400542	BAND,TENSION	
	334	BZ710540	85OP400533	CONNECT,TENSION	
	335	BZ710541	85OP600573	ARM,BRAKE T	
	336	BZ710763	85OP600584	BAND,BRAKE T	
	337	BZ710543	85OP600577	CAM,PINCH ROLLER	
	338	BZ710544	85OP600578	CAM,MAIN	
	339	AE005843	85OP600585	ROD,MAIN	
	340	BZ710546	85OP600582	GEAR,JOINT	
	341	BZ710110	85OP800322	SPRING,TENSION	
	342	BZ710547	85OP800360	SPRING,BRAKE T	
	343	BZ710548	85OP800355	SPRING,COUPLING	
	344	BZ710549	85OP800356	SPRING,RING	
	345	AE005844	85OP900754	LEVER,LINK	
	346	BZ710551	85OP900744	LEVER,FLAP	
	501	AE005845	810722680U	SCREW,TAP TITE(S) BIND	M2.6x8
	502	AE005846	83ETW3000U	E-RING	3.0
	503	AE005847	810722640U	SCREW,TAP TITE(S) BIND	M2.6x4
	504	AE005848	810212060U	SCREW,PAN	M2x6
	505	AE005849	810912660U	SCREW,TAP TITE(B) PAN	M2.6x6
	506	AE005850	810A13040U	SCREW/WASHER(A)	M3x4
	507	AE005851	810A12650U	SCREW/WASHER(A)	M2.6x5
	508	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
	509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
	510	AE005540	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
	CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
	CD1502	BZ614339	122Y021902	CORD JUMPER	2Y021902
	H5001	AD301675	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756
	H5002	AD301676	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
⚠	M101	AE005552	1596S98002	MOTOR,LOADING	MDB2B66B
	M2001	AE005853	1510S98044	CAPSTAN DD UNIT	F2QVB73B
⚠	M2003	AE003673	1589S11020	MICRO MOTOR	I2OAL34
⚠	UN4001	AE005991	A5N4033500	CYLINDER UNIT ASS'Y	A5N4033500

DVD DECK REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
⚠	600	AE005942	A5R801V650	DVD MECHA ASS'Y	A5R801V650
	601	AE005003	92P100109A	HOLDER,TRAVERSE	
	602	AE003550	92P100094A	CLAMPER	
	603	AE003551	92P100088A	GEAR,MOTOR	
	604	AE003537	92AAA0013A	FEED RACK ASS'Y	
	605	AE003538	92P200013A	INSULATOR(F)	
	606	AE003539	92P200014A	INSULATOR(R)	
	607	AE005929	92SBB0030A	LOADER SUB ASS'Y	
	608	AE003541	92P100095A	GEAR,PULLEY	
	609	AE003542	92P100097A	PULLEY,MOTOR	
	610	AE003549	92P100096A	GEAR,MAIN	
	611	AE003544	92P200012A	BELT,LOADING	
	612	AE003545	92P000014A	PLATE,CLAMPER	
	613	AE003546	92P100093A	RACK,LOADING	
	614	AE003547	92P100091A	FRAME,MAIN	
	615	AE004280	92P100100A	TRAY	
	616	AE003535	92P100089A	RACK,FEED 1	
	617	AE003536	92P100090A	RACK,FEED 2	
	618	AE003543	92P300020A	SPRING,RACK FEED	
	619	BZ710149	800WFAA008	CUSHION C	
	701	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
	702	AE003554	814011723U	SCREW,PAN	M1.7x2.3 P3
	703	AE003555	816112080U	SEMS.TAP TITE(P) PAN W10	2x8
	704	AE003556	814011730U	SCREW,PAN	M1.7x3 P3
	705	AE003557	811022080U	SCREW,TAP TITE(P) BIND	2x8
	CD2001	AD301855	122H0O1901	CORD JUMPER	2H0O1901
	CD2301	AE003558	122H062102	CORD JUMPER	2H062102
	CD2302	AE003559	122H052601	CORD JUMPER	2H052601
⚠	M2602	AE005930	1515S98003	FEED MOTOR	BCZ3B03B
⚠	M2603	AE005931	1596S18003	MOTOR,LOADING	BCZ3B52B
	PCB610	AE005932	A5R801V610	PCB ASS'Y	DED003A
	PCB640	AE005933	A5R801V640	PCB ASS'Y	DED002B
	SW1	AE003564	0515S32002	SWITCH	SSS-13-2
	SW2	AE003565	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
⚠R307	BZ210083	R3X28A010J	R,METAL OXIDE	1 OHM 2W
⚠R402	AE000607	R3X28AR56J	R,METAL OXIDE	0.56 OHM 2W
⚠R408	BZ210087	R3X18A221J	R,METAL OXIDE	220 OHM 2W
⚠R426	AE000609	R5X2CD4R7J	R,CEMENT	4.7 OHM 5W
⚠R430	BZ210087	R3X18A221J	R,METAL OXIDE	220 OHM 2W
⚠R447	BZ210021	R65582680J	R,FUSE	68 OHM 1/2W
⚠R448	BZ210003	R3K181102J	R,METAL OXIDE	1K OHM 1W
⚠R450	AE006479	R6388A2R2J	R,FUSE	2.2 OHM 2W
⚠R803	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R805	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R807	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R1701	BZ210206	R002T2155J	RC	1.5M OHM 1/2W
⚠R1703	AE005735	R63881R22J	R,FUSE	0.22 OHM 1W
⚠R1704	BZ210017	R5X2CE2R2J	R,CEMENT	2.2 OHM 7W
⚠R1706	AE000489	R3X28BR27J	R,METAL OXIDE	0.27 OHM 3W
⚠R1707	AD301921	R5X34F332J	R,CEMENT	0 3.3K OHM 10W
⚠R1730	BZ210248	R3X181R15J	R,METAL OXIDE	0.15 OHM 1W
⚠R1735	AE000608	R3X28B104J	R,METAL OXIDE	100K OHM 3W
⚠R3002	AE000612	R655U4100J	R,FUSE	10 OHM 1/4W
⚠R3006	AE000612	R655U4100J	R,FUSE	10 OHM 1/4W
⚠R3108	AE000612	R655U4100J	R,FUSE	10 OHM 1/4W
⚠R3608	AE000612	R655U4100J	R,FUSE	10 OHM 1/4W
⚠R3612	AE006480	R638U4220J	R,FUSE	22 OHM 1/4W
⚠R3614	AE006480	R638U4220J	R,FUSE	22 OHM 1/4W
⚠R3623	BZ210191	R3X28B010J	R,METAL OXIDE	1 OHM 3W
		CAPACITORS		
C322	BZ110053	E02LF3102M	CE	1000 UF 25V
C405	BZ110101	E5EZF3222M	CE	2200 UF 25V
C421	BZ110055	E5EZF4102M	CE	1000 UF 35V
C423	BZ110136	P4J7F3394J	CMPP	0.39 UF 250V PMS
C424	AD301978	P4N8FJ133H	CMPP	0.013 UF 1.25KV
C431	BZ110225	E5EZFD220M	CE	22 UF 250V
C450	BZ110202	C0PLRR713K	CC	0.001 UF 2KV R
C802	BZ110226	C0JBB07H3K	CC	0.0022UF 2KV B
C1003	BZ110170	E51A0P104Z	CE	0.1 F 5.5V
⚠C1701	BZ110025	P2122B224M	CMP	0.22 UF 275V ECQUL
C1703	BZ110226	C0JBB07H3K	CC	0.0022UF 2KV B
C1704	BZ110226	C0JBB07H3K	CC	0.0022UF 2KV B
C1705	BZ110251	E52D0H221M	CE	220 UF 400V
C1712	BZ110032	E5EZF3102M	CE	1000 UF 25V
C1713	BZ110129	E5EZF2222M	CE	2200 UF 16V
C1715	BZ110175	C03L0R7H2K	CC	220 PF 2KV R
C1717	AE004799	E61SFC221M	CE	220 UF 200V
⚠C1718	AE000308	CD39B0MQ2K	CC	470 PF 250V
⚠C1727	AE000308	CD39B0MQ2K	CC	470 PF 250V
⚠C1728	AD301026	CD39E0M13M	CC	0.001 UF 250V
C1730	BZ210176	E02LF3222M	CE	2200 UF 25V
⚠C1732	AD301026	CD39E0M13M	CC	0.001 UF 250V
C1733	AE000606	P3N1F5103J	CPP	0.01 UF 630V
C1734	AE000599	C0PLRR712K	CC	100 PF 2KV R
C1735	BZ110175	C03L0R7H2K	CC	220 PF 2KV R
C3616	AE000602	E0ELF2222M	CE	2200 UF 16V
C6029	BZ110173	CHG0B0413K	CC	0.001 UF 50V B
C6640	AE000600	CQGTCH4H2J	CC	220 PF 50V CH
C6641	AE000600	CQGTCH4H2J	CC	220 PF 50V CH
		DIODES		
D351	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D401	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D402	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D403	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D404	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D406	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D407	BZ410059	D2WT11ES10	DIODE,SILICON	11ES1-EIC
D411	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D413	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D602	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D603	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D606	BZ410058	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D607	BZ410058	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D608	BZ410058	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D609	BZ410061	D97U01001B	DIODE,ZENER	MTZJ10B T-77
D610	BZ410077	D2WXSB1400	DIODE,SCHOTTKY	SB140-EIC
D801	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D804	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		DIODES		
D806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1001	BZ410066	D97U06R21B	DIODE,ZENER	MTZJ6.2B T-77
D1003	AD301638	0010E00330	INFRARED LED	LTE-3271T-012A-O
D1005	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1006	BZ410077	D2WXSB1400	DIODE,SCHOTTKY	SB140-EIC
D1008	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D1009	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1010	BZ410077	D2WXSB1400	DIODE,SCHOTTKY	SB140-EIC
D1021	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1201	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1202	BZ410077	D2WXSB1400	DIODE,SCHOTTKY	SB140-EIC
D1252	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1261	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D1701	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D1702	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D1703	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D1704	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D1706	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1708	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1709	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D1712	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
⚠D1713	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D1715	AE002498	D2LKB340F0	DIODE,SCHOTTKY	SB340FL-6737
⚠D1716	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D1717	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D1719	BZ410080	D2WXRU2AM0	DIODE,SILICON	RU2AM-EIC
⚠D1720	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D1721	BZ410126	D2WXRU3AM0	DIODE,SILICON	RU3AM-EIC
D1723	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1725	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D1727	AE000601	D28F31DQ06	DIODE,SILICON	31DQ06-FC
D2201	BZ410054	0021721150	LED	SLR-342VCT32
D2203	BZ410054	0021721150	LED	SLR-342VCT32
D2204	BZ410054	0021721150	LED	SLR-342VCT32
D2601	BZ410121	DDARDS1200	DIODE,SILICON	KDS120RTK
D3001	BZ410094	D97U01501B	DIODE,ZENER	MTZJ15B T-77
D3002	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D3003	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D3602	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D4001	BZ410119	DDDRL41480	DIODE,SILICON	MCL4148
D4203	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4501	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D8111	BZ410119	DDDRL41480	DIODE,SILICON	MCL4148
D8112	BZ410119	DDDRL41480	DIODE,SILICON	MCL4148
		ICS		
⚠IC353	AD302184	I0FSP7522N	IC	AN7522N
⚠IC401	BZ611081	I0WTD81740	IC	TDA8174A
IC601	AE002220	I0WDE2247H	IC	STV2247H
IC603	BZ611133	I03D079560	IC	LA7956
IC1003	AD301641	I9UF032310	IC	PST3231NR
IC1006	AE005960	I54F50136C	IC	OEC0136C
IC1099	AE005951	A5N403T015	INIT DATA	BR24L08F-WE2
IC1201	AE000036	ICKF0310A0	IC	ET-TVT0310A
IC1202	BZ611091	I0UF012310	IC	MM1231XF
IC1203	AD301927	I0UF015040	IC	MM1504XNRE
⚠IC1701	AE000604	I2BT068530	IC	STR-W6853
⚠IC1704	AE002809	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC2301	AE003581	I03F065650	IC	LA6565-TE-L-E
IC2601	AE002837	ICQK067080	IC	ZR36708TQC
⚠IC3002	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3003	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3101	BZ611033	I1KA97809A	IC	KIA7809API
⚠IC3601	BZ611033	I1KA97809A	IC	KIA7809API
⚠IC3602	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3603	BZ611015	I1KA97805A	IC	KIA7805API
IC4001	AE003586	ICQK06762V	IC	ZR36762PQCG_V
IC4002	AE005421	I57J0L02F0	IC	BR24L02F-WE2
IC4005	AE005215	IFLJ0632H7	IC	K4S641632H-UC75
IC4006	AE004241	I1HF9117L0	IC	SIP1117L-ADJ-TP
IC4007	AE004659	ICMJ0CEKE8	IC	SST39VF800A-70-4C-EKE
IC4201	AE001295	I0QJ045800	IC	NJM4580M(TE1)
IC4202	AD301988	I0UF015010	IC	MM1501XNRE
IC4203	AD301988	I0UF015010	IC	MM1501XNRE
IC4204	AD301988	I0UF015010	IC	MM1501XNRE
IC4205	AD301988	I0UF015010	IC	MM1501XNRE
IC4501	AE000033	I04F38225F	IC	HA118225F
IC4502	BZ611092	I3EF656500	IC	SDA5650/X

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		ICS		
IC5501	BZ611051	I0KF79605H	IC	TDA9605H
IC5502	AD301988	I0UF015010	IC	MM1501XNRE
IC5503	AD301988	I0UF015010	IC	MM1501XNRE
IC6001	BZ611135	I03D7567B0	IC	LA7567B
IC6601	BZ611136	I19FF34170	IC	MSP3417G-QG-B8
IC6602	BZ611137	I19FF34150	IC	MSP3415G-QG-B8
⚠IC6603	BZ611015	I1KA97805A	IC	KIA7805API
IC8102	AE003584	I17F017530	IC	PCM1753DBQR
		TRANSISTORS		
Q301	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q302	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q303	AE005876	TNRAB05004	COMPOUND TRANSISTOR	RT1N141C-T1
Q305	BZ510022	TNYJJ05001	COMPOUND TRANSISTOR	DTC114TKAT146
Q306	BZ510022	TNYJJ05001	COMPOUND TRANSISTOR	DTC114TKAT146
⚠Q401	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q405	BZ510097	TCAT03227Y	TRANSISTOR,SILICON	KTC3227_Y-AT
⚠Q406	BZ510040	TDUU024990	TRANSISTOR,SILICON	2SD2499(LB0EC1)
Q602	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q603	BZ510025	TPYJB05001	COMPOUND TRANSISTOR	DTA114EKAT146
Q604	BZ510114	T8AA03881S	TRANSISTOR,SILICON	KTC3881S-RTK
Q607	AE005961	TCATC31970	TRANSISTOR,SILICON	KTC3197-AT/P
Q608	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q610	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q611	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q612	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q613	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q614	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q801	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
Q802	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
Q803	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
! Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1001	BZ410107	0002700690	PHOTO COUPLER	RPI-303
Q1002	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1003	BZ410106	0002700680	PHOTO COUPLER	RPI-352C40N
Q1004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1005	BZ410107	0002700690	PHOTO COUPLER	RPI-303
Q1006	BZ410097	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1007	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q1008	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1009	BZ410106	0002700680	PHOTO COUPLER	RPI-352C40N
Q1010	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q1011	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1015	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1016	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1017	BZ410097	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1101	BZ510074	TDAT00863Y	TRANSISTOR,SILICON	KTD863_Y-AT
Q1104	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1253	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1262	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1703	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q1705	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q1706	BZ510087	TCAT032070	TRANSISTOR,SILICON	KTC3207-AT
Q2601	BZ510112	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2602	AE003592	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2603	BZ510113	T27T030180	FET	2SK3018T106
Q2604	BZ510113	T27T030180	FET	2SK3018T106
Q2605	BZ510113	T27T030180	FET	2SK3018T106
⚠Q3001	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3002	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3006	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3101	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3102	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q3601	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3602	AD301934	TBA0013660	TRANSISTOR,SILICON	KTB1366(O,Y)
Q3603	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3605	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3606	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q3607	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3608	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
Q3609	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
Q3611	AE000613	TNATC03002	COMPOUND TRANSISTOR	KRC103MAT
Q4004	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4201	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4202	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q4203	BZ510045	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		TRANSISTORS		
Q4204	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4205	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4206	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4207	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4208	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4209	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q4210	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4211	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4212	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4213	BZ510025	TPYJB05001	COMPOUND TRANSISTOR	DTA114EKAT146
Q4214	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4215	BZ510081	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q4216	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4217	BZ510025	TPYJB05001	COMPOUND TRANSISTOR	DTA114EKAT146
Q4218	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4501	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4502	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q4505	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q4506	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4507	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4508	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4509	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4606	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q4607	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q4618	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q6001	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q6004	AE005961	TCATC31970	TRANSISTOR,SILICON	KTC3197-AT/P
Q6005	AE005961	TCATC31970	TRANSISTOR,SILICON	KTC3197-AT/P
Q8102	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q8103	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q8104	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
		COILS &TRANSFORMERS		
L352	BZ310181	02A6B2E0A1	CORE,FERRITE	HF70T22*10*14
L401	BZ310004	021679472K	COIL	4.7 MH
L402	BZ310013	0221000013	COIL,LINEARITY	ELH5L4112N
⚠L505	AE002186	02D1000060	COIL,CHOKE	ETQR42T018B
L601	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L602	BZ310196	02167B101K	COIL	100 UH
L603	BZ310077	021LA61R0M	COIL	1 UH
L606	BZ310009	021LA62R2K	COIL	2.2 UH
L607	BZ310147	021LA6R33M	COIL	0.33 UH
L608	AE000773	021LA6120J	COIL	12 UH
L610	BZ310002	021673101K	COIL	100 UH
L611	BZ310002	021673101K	COIL	100 UH
L612	BZ310148	033700005R	COIL,VIDEO IFT	3700005
L613	BZ310041	02167F101J	COIL	100 UH
L614	AD301445	021LA6100J	COIL	10 UH
L616	BZ310009	021LA62R2K	COIL	2.2 UH
L801	BZ310170	021673151K	COIL	150 UH
L802	BZ310170	021673151K	COIL	150 UH
L803	BZ310170	021673151K	COIL	150 UH
L1001	BZ310043	021LA6150K	COIL	15 UH
L1202	BZ310041	02167F101J	COIL	100 UH
L1203	BZ310141	02167F100J	COIL	10 UH
L1204	BZ310041	02167F101J	COIL	100 UH
L1205	BZ310141	02167F100J	COIL	10 UH
⚠L1701	AE000571	029X000109	COIL,LINE FILTER	SS28V-K10410
L1702	BZ310124	02AHA896A1	CORE,FERRITE	W5T18.4X10X9.6
⚠L1703	BZ310195	028R200015	COIL,DEGAUSS	8R200015
L2201	BZ310052	021LA6100K	COIL	10 UH
L2202	BZ310052	021LA6100K	COIL	10 UH
L3001	BZ310002	021673101K	COIL	100 UH
L4001	BZ310191	02167F2R2J	COIL	2.2 UH
L4002	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L4201	AD301445	021LA6100J	COIL	10 UH
L4202	BZ310041	02167F101J	COIL	100 UH
L4203	AD301445	021LA6100J	COIL	10 UH
L4204	AD301445	021LA6100J	COIL	10 UH
L4207	BZ310001	021673101J	COIL	100 UH
L4208	AD301445	021LA6100J	COIL	10 UH
L4502	BZ310196	02167B101K	COIL	100 UH
L4503	BZ310054	0316260088	COIL,BIAS OSC	1626008
L4505	BZ310041	02167F101J	COIL	100 UH
L4506	BZ310041	02167F101J	COIL	100 UH
L4507	BZ310071	021LA6820K	COIL	82 UH
L4508	BZ310039	02167F220J	COIL	22 UH
L4509	BZ310039	02167F220J	COIL	22 UH

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		COILS &TRANSFORMERS		
L4510	AE000773	021LA6120J	COIL	12 UH
L4511	AE004221	021LA6390J	COIL	39 UH
L4512	BZ310041	02167F101J	COIL	100 UH
L4514	BZ310010	021LA6390K	COIL	39 UH
L4515	BZ310041	02167F101J	COIL	100 UH
L4601	BZ310171	032623004T	COIL,TRAP	STP-01064
L4602	BZ310041	02167F101J	COIL	100 UH
L4608	BZ310056	021673102K	COIL	1 MH
L5501	BZ310041	02167F101J	COIL	100 UH
L5502	BZ310041	02167F101J	COIL	100 UH
L6003	BZ310109	021LA62R7K	COIL	2.7 UH
L6006	BZ310197	03360K042R	COIL,VIDEO IFT	360K042
L6007	AD300910	021LA6150J	COIL	15 UH
L6008	BZ310049	021LA6R22M	COIL	0.22 UH
L6009	79091204	021LA61R5J	COIL	1.5 UH
L6011	AE004466	021LA61R2J	COIL	1.2 UH
L6053	BZ310196	02167B101K	COIL	100 UH
L6056	AD301445	021LA6100J	COIL	10 UH
L6601	BZ310198	02167D220K	COIL	22 UH
L6602	BZ310198	02167D220K	COIL	22 UH
L6603	BZ310198	02167D220K	COIL	22 UH
L8102	AE000828	02167F1R0K	COIL	1 UH
L8103	AE000828	02167F1R0K	COIL	1 UH
L8104	AE000828	02167F1R0K	COIL	1 UH
T401	BZ310172	045013003J	TRANS,HORIZONTAL DRIVE	ETH14Y47AY
⚠T1701	AE000573	0481420674	TRANSFORMER,SWITCHING	81420674
		JACKS		
⚠J801	AD301356	066F130020	SOCKET,CATHODE RAY,TUBE	ISHS53S
J2201	AE003431	060J131016	HEADPHONE JACK	MSJ-2000_AG
J2202	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J2203	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J2204	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4201	AE002430	063D100050	SOCKET,21PIN	MRC-021V-07_A
J8007	AE002760	060J411033	RCA JACK	MSP-213V1-732_NI_LF
		SWITCHES		
SW1001	BZ612016	0508S11001	SWITCH (LEAF)	LSA-1144EAU
⚠SW1702	AE000574	0530105019	SWITCH	ESB92S22B
SW2201	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2202	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2203	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2204	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2205	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2206	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2207	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2251	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2252	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2253	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2254	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2255	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2256	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2257	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2258	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS		
VR401	BZ210265	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
VR402	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
VR1701	BZ210265	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
		P.C.BOARD ASSEMBLIES		
PCB010	AE005950	A5N403T010	PCB ASS'Y	DMD027A
PCB070	AE005952	A5N403T070	PCB ASS'Y	CMD014A
PCB110	AE005953	A5N403T110	PCB ASS'Y	CCD008A
PCB130	AE005954	A5N403T130	PCB ASS'Y	DMD008A
PCB270	AE005955	A5N403T270	PCB ASS'Y	CED031A
PCB300	AE005956	A5N403T300	PCB ASS'Y	DED027A
PCB310	AE005957	A5N403T310	PCB ASS'Y	DED026A
PCB320	AE005958	A5N403T320	PCB ASS'Y	CED032A
PCBD00	AE005959	A5N403TD00	PCB ASS'Y	CED033A
		MISCELLANEOUS		
B1201	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B1701	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B2601	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2602	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2603	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2604	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B2605	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4001	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4002	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4003	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
B4004	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4005	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4006	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4007	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4008	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4010	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
B4203	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B8103	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04
BT101	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
BT102	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
CD001	AE006481	06CPL02011	CABLE,PAL	TD-OR0157F
CD352	AE000582	06CU149003	CORD,CONNECTOR	CU149003
CD504	AE000580	06CH82036A	CORD,CONNECTOR	CH82036A
CD601	BZ614264	06CH01429A	CORD,EIS CONNECTOR	CH01429A
CD602	BZ614066	06CH01004A	CORD,CONNECTOR	CH01004A
CD801	AE005637	06CH823004	CORD,CONNECTOR	CH823004
CD803	AE000581	06CU012301	CORD,CONNECTOR	CU012301
CD806	AE004476	06CUG14001	CORD,CONNECTOR	CUG14001
CD807	AE004476	06CUG14001	CORD,CONNECTOR	CUG14001
CD851	AE000558	WEL6840038	FLAT CABLE AWM2468 A	WG26 7C GRAY 400MM
CD852	AE002362	WBL6034038	FLAT CABLE AWM2468 A	WG26 4C BLACK 340MM
CF601	BZ613039	102E239R5B	FILTER,SAW	J1951M
CF602	AE005948	1022132R93	FILTER,SAW	SAFHM32M9VE0Z00B03
CF603	BZ613010	1012T04101	FILTER,CERAMIC TRAP	MKT41.5MA110P
CF605	AE000945	1012T6R014	FILTER,CERAMIC TRAP	TPSRA6M00B00-A0
CP352	AD301045	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP401	AE005944	069J620011	CONNECTOR PCB SIDE	IMSA-9202B-1-02Z012-
CP402	BZ614303	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP403	AE000577	069J620080	CONNECTOR	IMSA-9206H-T
CP504	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP603	BZ614380	069X170379	CONNECTOR PCB SIDE	07JQ-ST
CP801	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP806	BZ614058	069W010010	CONNECTOR PCB SIDE	005P-2100
CP851	AD301997	067U007029	WIRE HOLDER	B2013H02-7P
⚠CD1701	AE006482	1206435803	CORD,AC BUSH	6435803
CD1704	BZ614180	06CHU2017A	CORD,CONNECTOR	CHU2017A
CD2201	BZ614264	06CH01429A	CORD,EIS CONNECTOR	CH01429A
CD2251	AE000583	06CU230702	CORD,JUMPER	CU230702
CD4002	AE005945	06C32B3303	CORD,CONNECTOR	C32B3303
CD4005	BZ614373	122F061502	CORD,JUMPER	2F061502
CD6001	AE000586	06CUH18001	CORD,COAXIAL	CUH18001
CD8005	AE000584	06CU2F2201	CORD,CONNECTOR	CU2F2201
CD8006	BZ614414	06CU2D3001	CORD,CONNECTOR	CU2D3001
CD8101	AD301945	122H0C2203	CORD,JUMPER	2H0C2203
CF6001	AE005947	1012T6R015	FILTER,CERAMIC	SFSRA6M00CF00-A0
CF6002	AE006123	1022239R5E	FILTER,SAW	SAFHM39M5VAAZL0B03
CF6004	AE005948	1022132R93	FILTER,SAW	SAFHM32M9VE0Z00B03
CF6005	AE000945	1012T6R014	FILTER,CERAMIC TRAP	TPSRA6M00B00-A0
CF6007	BZ614185	1012T03102	FILTER,CERAMIC TRAP	MKT31.5MA110P
CF6008	BZ613010	1012T04101	FILTER,CERAMIC TRAP	MKT41.5MA110P
CP1001	BZ614289	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP1702	BZ614283	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP1704	BZ614176	069S320419	CONNECTOR PCB SIDE	A3963WV2-3PD
CP2201	BZ614350	069S230629	CONNECTOR PCB SIDE	A2001WV2-3P
CP2601	AE003571	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2602	AE005934	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2603	AE005935	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
CP3601	AE000579	069S2F0629	CONNECTOR PCB SIDE	A2001WV2-15P
CP3602	BZ614420	069S2D0629	CONNECTOR PCB SIDE	A2001WV2-13P
CP3603	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP4501	BZ614011	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP4503	AD301649	067U002019	WIRE HOLDER	B2013H02-2P
CP4505	BZ614050	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP6001	AE006483	069J1D0271	CONNECTOR PCB SIDE	6035B-13Z002-PT1
CP6601	AE006483	069J1D0271	CONNECTOR PCB SIDE	6035B-13Z002-PT1
CP6602	AE006484	069J150271	CONNECTOR PCB SIDE	IMSA-6035B-05Z002-PT
CP8001	BZ614214	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP8002	AD301797	069J7C0029	CONNECTOR PCB SIDE	IMSA-9604S-12Z14
CP8101	AD301798	069J7C0019	CONNECTOR PCB SIDE	IMSA-9604S-12Z13
CP852A	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP852B	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP853B	AD300098	069R270589	CONNECTOR PCB SIDE	52147-0710
CUS011	BZ710148	800WFAA007	CUSHION B	
CUS302	BZ710279	800WFAA006	CUSHION A	
EL001	BZ614044	124120301A	EYE LET	XRY20X30BD
EL002	BZ614043	124116281A	EYE LET	XRY16X28BD
⚠F1701	BZ614486	080NT04004	FUSE	50T040H

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
⚠FB401	AE003174	043220060F	TRANSFORMER,FLYBACK	FJN20A002_M
FH1701	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
FH1702	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
NR4001	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4002	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4003	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4004	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4005	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4006	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4007	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
NR4008	AE005937	110P4470M4	R,NETWORK	4D03WGJ0470T5E
OS2202	AD301949	0773071003	REMOTE RECEIVER	RPM7138-WH10
⚠RY1701	AD300114	0560V20115	RELAY	ALKS321
SP351	AE006459	070N546012	SPEAKER	YDP4010-2
SP353	AE006459	070N546012	SPEAKER	YDP4010-2
TM101	AE005946	076D0KT010	TRANSMITTER	ORT204N2604388-E
⚠TU601	BZ310465	0144507034	TUNER,UHF	TUWRF4EK-781F2S
⚠TH1701	BZ410050	D8R0A140M0	DEGAUSS ELEMENT	PTDAA1BF140M200
⚠TU6001	AE005943	0144507039	TUNER,UHF	TUWRF4EK-711F2
⚠V801	AE005627	0981210456	CRT W/DY	A51LYZ095X80
X601	BZ613024	100CT4R408	CRYSTAL	HC-49/U
X1001	BZ613007	100CT01002	CRYSTAL	HC-49/U-S
X1002	BZ613006	100DA32R01	CRYSTAL	DT-26
X1201	BZ613012	100CT01302	CRYSTAL	HC-49/U-S
X4001	AD301803	100BT02701	CRYSTAL	HC-49U/S
X4501	AE000023	100DT4R410	CRYSTAL	AT-49
X6601	BZ613042	100CT01803	CRYSTAL	HC-49/U-S
X6602	BZ613042	100CT01803	CRYSTAL	HC-49/U-S

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

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